PSYCHE

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EDITORIAL

With this, the twentieth quarterly issue of *Psyche*, we bring to a close our fifth volume ; and at the same time we take the opportunity of making two announcements which will be of interest to our readers.

The first is a special offer in connection with the first number of Volume VI, which will appear on July 1st, before which date we propose to secure 200 new annual subscribers. The success of our recent numbers, and the enquiries we are constantly receiving, suggest that in spite of our efforts to reach them during the past two years a large number of potential readers have still only to be introduced to *Psyche* to become permanent subscribers. Any reader, therefore, who obtains *two* fresh subscriptions (40/-), or who renews his own subscription for whatever date it may fall due, and sends one further subscription in addition, *before June 15*, will receive free a copy of any of the following half-guinea volumes :

Wittgenstein : *Tractatus Logico-Philosophicus.*
Whately Smith : *Measurement of Emotion.*
Ritchie : *Scientific Method.*
Richards : *Principles of Literary Criticism.*
Gregory : *The Nature of Laughter.*
Révész : *Psychology of a Musical Prodigy.*
Thurstone : *The Nature of Intelligence.*

Or any five of these books will be posted gratis to the sender of *five* new subscriptions (£5). It is hoped that this offer may prove an inducement to many to furnish their own Libraries with standard psychological works, while commemorating the Birthdays or Marriages of their friends in a substantial and enduring form.

Secondly, we are able to announce the formation of a Society in connection with *Psyche*, for the discussion of subjects similar to those dealt with in our columns. The Society will be known as "The Eclectics," and monthly meetings will be held, commencing this month with a paper by Sir Richard Paget dealing with his experiments on the Human Voice. The subscription to the general public will be £3 3s. 0d., but subscribers to *Psyche* (whether direct or through a newsagent) who inform us of their wish, may join on payment of a special reduced fee of £2 2s. 0d.

RECENT EXPERIMENTS IN THOUGHT-TRANSFERENCE

The paper appearing under the title of a " Report on Further Experiments in Thought-Transference carried out by Professor Gilbert Murray, LL.D., Litt.D.," by Mrs. Henry Sidgwick in the *Proceedings of the Society for Psychical Research*, Vol. XXXIV, December, 1924, pp. 212-274 and 336-341, provokes a discussion on the standard of evidence demanded by Psychical Researchers in their investigations. After reading the report the question immediately arises as to how far it is justifiable to accept the genuineness of the medium who is apparently responsible for the production of the phenomena under observation. Is it sufficient that he should have a certain social and academic standing, or must he be well known to the investigators in addition? Doubtless Mr. and Mrs. Zancig would be accepted in their own circle if they were rash enough to claim that they possess supernormal faculties, but would the Society for Psychical Research accept their assurances on the matter?

In this subject sound evidence cannot rest upon social distinction and personal position; rather must it rest upon the solid foundation of controlled and rigid conditions under which the experiments are conducted. It is only when all normal processes have been effectually eliminated that supernormal agencies can be assumed. Such a demand on the part of the investigator in no way presupposes fraud on the part of the medium; it merely implies the use of a method which is essential if the experiments are to be scientifically valuable. In the following remarks upon Professor Murray's work, it must not be assumed that his good faith is in any way doubted. Questions are asked and observations are made which would be necessary with other mediums, and are therefore pertinent in this case, unless all evidence on the subject is going to be based on the assertions of the mediums themselves concerning their powers, since the standard of evidence cannot vary with each medium examined.

The value of the evidence presented in this report can only be ascertained when the conditions under which the results were obtained have been examined. The procedure, as far as can be

judged from the accounts quoted by Mrs. Sidgwick, is shortly this. The medium leaves the room and waits in the hall or in another room[1]; the agent then chooses a subject which he communicates to a note-taker by word of mouth; the medium is recalled; he enters and takes the hand of the agent, although direct contact is not supposed to be necessary; he then proceeds to give his impressions which are recorded by the note-taker together with any question that the agent asks.

The great weakness in these conditions lies in the fact that the medium is entirely uncontrolled during his absence from the room, and there is apparently only his statement that he stands where he is alleged to stand and where, for the purposes of the experiment it is essential that he shall stand. From the scientific point of view this omission from the experiments under discussion renders them of little value. The next serious omission is that the medium is not controlled during his presence in the room. It must be remembered that the greatest proportion of successes was reached when members of his own family acted as agents. Mrs. Sidgwick says on page 218 that the success gained with other agents was "proportionately less than that of the immediate family," and Mrs. Verrall in *Society for Psychical Research Proceedings*, Vol. XXIX, 1918,[2] p. 83, says that: "In the earlier series, the success was greatest when Mrs. A. Toynbee (the medium's daughter) was acting as ostensible agent, the percentage of complete success when this was the case being 35.7, and of failure (including lack of impression) being 38, as against 33.1 and 39 respectively in the general totals." Of the 140 experiments quoted in the volume under discussion, the percentage of successes and failures when the immediate family acted as agents is approximately 36 and 21 respectively, as against 25 and 30 when other agents were used. This difference may be due to the causes that Mrs. Sidgwick indicates, but, on the other hand, it is possible that it may be due

[1] The report contains no plan of the relationship between the room where the experimenters sit and the room in which the medium is alleged to wait, and very little idea can be gathered from the description given of the distance they are apart. In the appendix a more detailed account is given of the rooms at Fishers Hill in which a few experiments were conducted, but it is not clear whether the rooms mentioned were connected directly by doors or whether they opened on to a hall. The remark, that after the first experiment the door of the dining-room in which the medium was supposed to wait was left open, remains unexplained; and it would be interesting to discover who suggested this alteration and for what possible purpose.

[2] Mrs. Sidgwick advises that this report should be read in close connection with her own.

to collusion between the medium and his family. Under the given conditions the use of a code is naturally easy, and until a control is enforced which makes its use impossible, the supernormal qualities of the experiments can in no way be accepted.

Mrs. Sidgwick records two cases when outsiders chose the subject, and a member of the family acted as agent; both were failures. This rather points away from the use of a code and suggests pre-arrangement between the medium and the agent. This would account for the higher percentage of successes when members of the family are agents, but would not explain successes when persons other than the family are agents. This class can only be accounted for normally by listening on the part of the medium or by auditory hyperaesthesia, and then the failure, when an outsider suggests the subject and a member of the family acts as agent, may be due to the upsetting of the timing on the part of the medium, probably owing to discussion between the agent and the proposer of the subject.

Another weakness in the experiments is the fact that no detailed stenographic report is taken of each sitting as a whole. The subject and the medium's impressions are written down, but whether there is conversation or discussion during the choice of subject or comments while it is being recorded is not stated.

In discussion of the evidence Mrs. Verrall and Mrs. Sidgwick adopt the same procedure. They discuss the possibility of auditory hyperaesthesia (and the cases they mention might equally well be explained by normal hearing), and then they give cases which they say cannot be explained by this hypothesis. Mrs. Verrall (*Op. cit.*, pp. 73, 74) gives examples of 17 cases where mis-hearing might account for the mistakes made by the medium. "Thus we find the following substitutions:

J. A. Smith	for Jane Eyre
Masefield	for Mansfield
Synge and Arran	for a Scene with Anne Boleyn," etc.

A similar case is to be found on page 99 of the same report when Cameron the Planter is interpreted by the medium as Cannan of the Press.

On ten occasions when writing was substituted for speaking there were no successes (p. 67), and Mrs. Verrall notices that noise during the medium's absence from the room is "a very potent cause of failure to obtain any impression at all" (p. 73). On more than one occasion during the early experiments the medium has announced on entering the room that he "heard so-and-so's voice," and of the cases considered by Mrs. Sidgwick, on two occasions the experiments were stopped because the medium said that he

had heard part of what was said, which he attributed to the loud speaking of one of the sitters due to excitement. If the success of the experiments can be accounted for normally, these last mentioned cases would be an ordinary piece of mis-direction on the part of the medium.

In her discussion of cases that point to telepathy Mrs. Sidgwick lays a good deal of stress on what may be known as the Doughty case (p. 231). It is as follows :

> July 14, 1918. Mr. Penmorlan Main (agent) : " Sir Francis Drake drinking the health of Doughty before he was led out to be hanged."
>
> Professor Murray : " Is this a—?—No, I've a faint feeling of Arabia or desert."

Mr. C. M. Doughty wrote a book called *Travels in Arabia Deserta*, and Mrs. Sidgwick suggests that the impression obtained by the medium was due to the fact that the name Doughty, though " neither consciously heard or apprehended," in some way " ' got through ' " to him. Is not it also possible that the word *Doughty* was only half heard and was interpreted as *drought*, and the feeling of Arabia and desert followed from this

Another example which Mrs. Sidgwick gives in this connection is as follows (p. 232) :

> September 10, 1916. Mr. Mellor (agent) : " I'm thinking of the operating room in the nursing home in which I was operated."
>
> Professor Murray : " I got an impression of a theatre. No. I can't get it. I'm now guessing—Covent Garden and Oedipus."

This, again, may be due to deficient normal hearing, the words OPERAting and OPERAted suggest at once the theatre and Covent Garden.

There is one case that Mrs. Sidgwick refers to more than once, in which she claims that the medium obtains information which is true, and which he did not know before, and which was not mentioned during the experiment, and therefore cannot be due to hearing of any kind (p. 214) :

> August 26, 1916. " Mrs. Arnold Toynbee (agent) : ' I think of the beginning of a [story by] Dostoievsky where the dog of a poor old man [is] dying in a restaurant.'
>
> Professor Murray : ' I think it's a thing in a book. I should think a Russian book. A very miserable old man, and I think he's doing something with a dead dog. [A] very unhappy one. I rather think it is in a restaurant and people are mocking, and then they are sorry and want to be kind. I am

not sure.' ('Nationality ? ') ' No—I don't get their nationality. I have a feeling that it is something Russian.' ([Mrs. Toynbee] had not said it, but it was all true. Mr. Murray had not read the book . . .) "

This sounds interesting until it is found in the Appendix (p. 251) that the same subject in a slightly different form had been chosen by the same agent four months earlier, and a note is appended to say that a discussion had probably followed the earlier experiment. Before accepting this as evidence of the supernormal it must be proved conclusively that the incident was not mentioned in its supplemented form during the discussion on the earlier date.

These are examples of what are considered to be good cases of thought-transference. Besides these there are a great many cases in which the medium repeats almost word for word the subject chosen. Here is an example (p. 234) :

April 6, 1924. Mr. Stephen Murray (agent) :

" There is some corner of a foreign field
That is for ever England's.—R. Brooke."

Professor Murray :

" There's some corner of a foreign field
That is for ever England."

Assuming normal methods, it would appear either that the medium must have recognised the quotation, and so withdrew before it was all spoken ; or he assumed that the subject was complete at the end of the line ; or the last two words were said in a lower tone by the agent and so were inaudible outside the room.

An example of the naive belief in the subject of experimentation on the part of the compiler of this report is to be found in her treatment of the Rip Van Winkle case (pp. 236, 237) :

September 10, 1916. Mr. Arnold Toynbee (agent) : " I'll do Rip Van Winkle coming down the mountain."

Professor Murray : " Oh I've got this. It's an old sort of gnome-like person with a matted beard coming down—very funny feeling expecting to be known and find things—Oh it's Rip Van Winkle."

Mrs. Sidgwick's comments are so illuminating that they must be quoted in full : " Professor Murray gets a good picture of Rip Van Winkle, with appropriate description of his mental state—neither derived directly from the agent's words—before he realises that his picture represents Rip Van Winkle after awaking from his 200 years' sleep." How it is possible to determine at what moment the idea enters the medium's head is not explained. The dramatic instinct of this particular medium may lead him to prefer to work up to a climax, and to produce the complete name after a moment

of breathless anticipation on the part of his listeners. This is not the only case in which Mrs. Sidgwick states that the "associated idea precedes any knowledge of the subject," and she gives references to other examples of the same thing on page 239.

Another extraordinary feature of the report is that in a so-called scientific publication it is thought to be worth while to record what the agents or medium *said* they had thought after the event has proved that such thoughts would have been applicable. An example can be found on page 268 :

> December 3, 1919. Miss Agnes Murray (agent) : "I think of Mr. Spooner driving along Holywell in a very high two-wheeled buggy."
>
> Professor Murray : "It's somebody driving an Australian buggy—sort of high two-wheeled thing—Driving on a sort of muddy, wet day, down Holywell. Ought I to say who it is ? I should say a young American. No impression."
>
> ([Miss Murray] "thought of the mud, but did not say so.")

Mrs. Sidgwick, in commenting on the case on page 235, treats it seriously. If for the sake of completeness it is necessary to insert such material, a note might have been appended to explain that such comments are valueless.

Taking the facts as recorded, the hypothesis of conscious hearing *plus* successful guessing *plus* similar associations in the minds of the medium and his family, seem to account for the results obtained. This theory is supported by the fact of the higher percentage of successes when the family to whose voices and enunciation the medium is accustomed, act as agents ; and by the internal evidence obtained from the actual experiments. Until this medium consents to sit under controlled conditions his powers, however real they may be, can be given no credence.

A. M.

THE PSYCHOLOGICAL INTEREST IN GENERAL MEDICAL PRACTICE

By F. G. CROOKSHANK, M.D., F.R.C.P.

(The substance of the present article was delivered as an address to medical men interested in the bearing of psychology on their practice. Its publication in "Psyche" will enable psychologists to realise how closely their work is related to modern tendencies in Diagnosis.)

When some 30 years ago, as an Asylum Medical Officer, I first commenced to recognise that every person who is ill is ill psychically as well as physically, I hoped and believed that the rectification of disordered psychical states was best brought about by the rectification of the disordered physical states, just as "that Kruschen feeling" is said to be, and sometimes is, brought about by a dose of salts. But, apart from my experience in particular cases, I fear that I accepted this as a principle of general value, because at that time I believed in the odd sort of psycho-physical parallelism, bred by agnosticism out of materialism, that was then so deplorably current. I now believe, as a result of experience and reflection that, though we can often secure psychical amelioration when we treat patients physically, and though we often fail—and must fail, unless we have that faith as a grain of mustard seed that will remove mountains and cast them into yonder sea—although we fail, I say, to cure certain physical ailments by what are called psychical methods; nevertheless, the last word, the final choice is, more often than we think, with ourselves: with our Will. Mind has the casting vote, and is the predominant partner: what we call the body is at some time or another subordinate to it. If I have come to abandon belief in the agnostic psycho-physical parallelism of Herbert Spencer, Huxley, and Hughlings Jackson, I am only one of very many who have reached the same conclusion, though by diverse routes, and who are glad of it.

No one, I think, will dispute my first proposition: that, when there is physical disorder there is also some psychical disorder, and that, when there is psychical disorder, there is also some physical disorder. This is the true meaning of the phrase: ***mens sana in***

corpore sano, and of its complement : *mens insana in corpore insano*. Realisation of this is one of the elementary experiences of mankind : so elementary indeed, that it is overlooked by doctors who fail to see the physical signs in insanity, and the psychical disorder in what we call bodily disease. It is true that in some cases the physical aspect apparently predominates, as when we speak of organic disease ; while in others, the psychical as obviously predominates, and we say the patient is " mental." But there is a vast range of cases in which the psychical and physical disorders seem as it were evenly balanced. We dismiss such cases from our notice, calling them " functional." But that does not help the patient. It is to these cases, chiefly, that I would now direct attention, especially as for them the whole problem is easily resolved, if, without neglecting the physical, we attach primary importance to the psychical aspect of the illness.

Amongst the patients whom we call cases of organic disease we find the irascible man with aortic disease, the anxious man with a fatty myocardium, the hopeful youth with phthisis, and the hypochondriac with abdominal disease. At the other end of the scale, amongst the " mentals," we see the sweating, incontinent and mydriatic maniac with a full bounding pulse, and the desiccated, constipated, and myotic melancholic, with a slow, small, pulse. But, in the central group we find those " functionals " who are the despair of the doctor and the joy of the charlatan—those who are cured by New Thought, Christian Science or Evangelical Conversion :—the migrainous with astigmatism ; the vertiginous with middle ear catarrh ; the asthmatic with no pulmonary or cardiac lesion ; the hysterical dyspareunic with a misplaced uterus ; the irritable and unstable old-young man with a big prostate ; and the harassed doctor with flatulent dyspepsia or hyperchlorhydria. These are they in whom physical and psychical disorder are so nicely combined that diagnosis in ordinary terms is a matter of grave difficulty. But these are they in whom the inner man has the last word ; if only it be spoken in time. If the golden moment pass by ; if the patient be confirmed in his functional sins ; such organic disease may develop as only the Surgeon amongst us, if even he, can remove. But, even then, even if what we call the " lesion " is triumphantly removed and put on a plate, the psychical disorder remains, and craves for what is seldom refused ; yet more surgery and more. The *complete* picture of parallel physical and psychical disintegration is seen in general paralysis of the insane, and we may say that here we have an instance of concomitant psychical and physical disorder produced without ever the option being offered to the Psyche. But I am not so sure. I

do not undervalue the importance of the spironema, but I have never seen a case of general paralysis,—and I have seen a good many—in which slackening and degradation of moral and psychical control did not precede the appearance of physical signs, if indeed, such psychical imbalance had not already preceded the acquisition of specific infection. So, even in the case of General Paralysis, it is not unfair to say that the inner man has the last word before the die is cast that establishes progressive somatic and spiritual decay. The point that I am anxious to make, for it is fundamental, is this : that, because we meet with cases in which functional disorder of one kind or another has been followed by organic changes, irremovable by mental effort, we need not assume that there was never a stage in which organic change might not have been averted, had right functional adjustment been first established. Cowper put the situation admirably, so far as the psychical and physical aspect of mental disease is concerned, when he wrote :—

> Faults in the life breed errors in the brain ;
> And these, reciprocally, those again.

Such, I think, is the play and interplay between what is called psyche and soma.

We need not, perhaps, pursue this train of thought farther, but if we enquire how organic changes can possibly be brought about in consequence of conscious or unconscious psychical states, we may find a link between brain and cord on the one hand, and viscera and tissues on the other, not so much by way of " trophic " centres, or centres representing visceral activities, as by way of the sympathetic and parasympathetic systems, their cerebral and spinal connections and their control (in correspondence with emotional and other states) of those vasomotor, secretory and muscular mechanisms that do undoubtedly lie behind disease processes, whatever be the part played by micro-organisms or toxins in their production.

What we must appreciate is that every case, whether in general or special practice, not merely has a subjective psychological interest, but presents an objective psychological complex. It is true that we have no direct acquaintance with the minds of others : we appreciate their minds by the medium of signs ; but equally we have no direct acquaintance with any form of disease in others : the disease is what we postulate to exist in the background of the signs.

We now come to a point that, I confess, is one not too willingly conceded by some of our most eminent teachers, although at once grasped by many who are more accustomed to think than to teach.

In medicine, those who teach, do not, as a rule, think. They repeat what they have been taught. Though our practice of our Art is very largely empirical—based on pure experience, and afterwards explained by some theory that gives us the illusion of being rational—it is, nevertheless, very largely, based upon the views we hold concerning the *nature* of disease, and the relation that we impute between what we call *mind* and *matter*. In other words, our notions concerning disease and its treatment are derived from our attitude towards certain metaphysical and philosophical problems. Time was when doctors of physic definitely studied philosophy in the broadest sense, and systems of medicine were then logically derived from current metaphysics. Nowadays we do not systematically study the foundations of knowledge and belief, but, nevertheless, medical doctrine is always, though unsystematically, expressed in terms of some form of metaphysical attitude, and usually in terms of some form that has been long discarded as inadequate by those whose business it is to occupy themselves with metaphysics and philosophy. And so, many of our so-called advances in medicine are not so much the result of advances in actual discovery as expressions of a change of attitude towards the fundamental problems of life : a change of attitude that follows in the wake of metaphysical and philosophic thought. Considerations of this sort may not seem very relevant to questions of technique : whether, for example, a leg should be amputated by a circular or a flap method, and so forth. But they do become of extreme importance when we have to decide whether or no a patient with colitis should be treated by laparotomy or by psychological methods. The man who holds one set of views will plump for appendicostomy, and will refuse to admit that psychological treatment can be useful : the man who holds to another will desire to postpone treatment by surgery until psychological treatment has failed. The one will say that, because the disease is organic, only surgery can help : the other will say that he will not be convinced the disease is organic until psycho-therapeutics has failed. Each will define the terms used in his own way : the surgeon, by "organic," means something he thinks he should treat. The psychologist, by "psychical," means something he thinks he should treat. And so on. The man who does not believe in the supremacy of mind over matter will "go for" material remedies : the man who believes in that supremacy will avoid exclusive reliance on drugs and surgery until psychical resources have failed.

In further illustration of my point, let me remind you that, in the Orient, disease is regarded as the result of the abstraction of

something spiritual from the body. Western races, on the whole, consider disease to be the expression of something added. In bygone centuries, this something added was, very frequently, a demon. To-day, this something added is often something no less elusive and fictitious:—a toxin that no chemist can identify: a filter-passer that no microscopist can see. But when a patient is constipated a dose of castor oil or calomel is just as efficacious, whether we give it with the intention to expel a demon, or to eliminate a poison. Still, whether or no we believe in demons or in poisons, official views in England concerning disease are of a particular order: they are partly materialistic, and partly derived from the discarded metaphysics of scholastic realists. A disease is officially something real, that can be studied as an objective entity; different diseases are said to be different kinds of natural objects, that can be studied in the same way as lions and tigers, postage stamps and coins, Conservatives and Socialists. This sort of talk, once current in Science, when Laws were supposed to govern the universe, and Forces like gravitation to keep the heavenly bodies in their place, is now obsolete, save in medicine; and for those who are interested in modern psychology it has little value. That is why, in the medical schools, where medieval metaphysics is still firmly embedded in Victorian Science, there is no clear teaching in respect of the psychological interest. One cannot accept the results of modern psycho-therapeutics so long as one believes that the only disease worth bothering about is something that "attacks" the patient, that makes a noise like a murmur, and that can be seen on a plate after death, when we have failed to cure the patient. People who think thus consider psychiatry a special method, that has nothing to do with really respectable medicine, but which may be employed, like violet rays, or a change of air, in those cases "which have nothing the matter with them."

Now there are, roughly speaking, three sets of views which may be said to be held in medicine concerning the relation between body and mind. And each of these sets of psychological, philosophical, or metaphysical views corresponds to a definite set of views in respect of health and disease, and moulds, in respect of treatment, the whole attitude of those holding it.

We have, in the first place, the views of those who may be called materialists. Materialists seek—I am only speaking in the broadest terms—to explain the world as composed of one kind of stuff only; that which they call matter and which moves. The phenomena of mind are, for these people, produced by physical and chemical changes in the nervous system: consciousness is a product or function of protoplasm and nothing more. Doctors who think

thus come to believe that, in disease, what is really important is the disturbance in fine or gross structure of the tissues or organs; and they hold that disturbance of function is always a result of organic change, though, rather absurdly, they *call* "functional" those cases in which no structural change is detectable, and whose symptoms they find negligible, or annoying to their self-confidence.

If a person is disturbed in his mind without apparent adequate cause, it is either because he has organic or chemical change somewhere about him, or because he is a "functional case" not worth bothering about! If such people get well after treatment by surgery or drugs, it is proof that the materialistic view is correct! If they don't, they are hustled on one side as pestilent knaves, or consigned to a lunatic asylum! Anyway, they are got rid of, somehow or another, if indeed they do not commit suicide. In the meantime, under influence of such notions, countless operations are performed, and countless treatments are carried through, on patients who could be successfully treated by what we will call psycho-therapy. Sometimes the result of the surgical treatment appears successful; but the method adopted is that of burning down the house to cook the pork chops. A constipated lady, on the occasion of her husband's return from abroad, fears the detection of an amatory intrigue. She is uneasy: she has belly pain: she transfers her anxiety from her intrigue to her appendix, because her sister-in-law has just had appendicitis. A surgeon is called, and the appendix is removed, in an atmosphere of mutual sympathy and admiration. It is found "congested." Reciprocal congratulations: six weeks in a nursing home: the lady and her lover forget each other; or the husband amuses himself elsewhere; and all is well until the next amatory crisis, when the same surgeon is called in to remove adhesions, to take out the gall-bladder, or to fix the colon tautly. And so on. Nothing could be more satisfactory to all parties concerned.

Our second class of medical metaphysicians, openly or otherwise, believe that all that we call material in this world is but an aspect, or consequence, of mental perspective, and that mind, or spirit, is the ultimate or only reality. Those who apply such views to the subject of healing, or who derive their practice from such views, comprise not only the spiritualists (true and false) but the Christian Scientists, and many psycho-analytical practitioners. They have much in common with the Neo-Platonists, and, to use an ambiguous form of expression, declare that, if all is well with the mind, soul, or spirit, all will be well with the body. It is idle to deny that many who think thus, and who rule their lives accordingly, do adjust and escape

many of those troublesome, "functional," disorders that vex materialists such as those who seek to allay the indigestion that follows on an uneasy conscience by treatment with blue lights or pink pills. It is idle to deny that the spiritual experiences of one kind or another, called conversion and so on, do rid life-long invalids, hypochondriacs, and neurotics of troubles for which they have suffered much at the hands of many physicians. But, on the other hand, we must admit that, when confronted with cases of cancer or of tuberculosis in an advanced stage, for example, the spiritualistic practitioners have either to wash their hands of them—or to declare that the faith exhibited is insufficient for obtaining the result desired. At the same time, I am myself inclined to believe that what even a pathologist would call a case of organic disease may sometimes be cured by what we call psychological change. It is not good enough—to use a vulgarism—to say that, *because* a case is cured after a visit to Lourdes, it was never a case of organic disease. To speak thus is to beg the whole question. Let me put it this way. When an unexpectedly good result is obtained after the administration of a simple drug in a confirmed and seemingly hopeless case, many surgeons and physicians will say: Oh, yes! But was it not the effect of suggestion? The point is that the case recovered. To say "Suggestion" explains nothing. We might better say "Suggestion" when a laparotomy is performed successfully on a hysterical patient. When employing physical means we can never exclude a psychical effect, and, conversely, WE CAN NEVER exclude a "physical effect" when employing "psychical" means. If we give an enema, we are working on a low physical level; but we admit a psychical effect, as possible. If I say Abracadabra three times over, most people would say that I am only employing psychical means, and can therefore only hope for a psychical effect. Yet I am physically stimulating the auditory tract and its connections, just as definitely as does my friend who gives an enema stimulate the rectum, and its sympathetic and spinal connections. Merit as between the materialists and the spiritualists, then, so far as certain empirical results are concerned, seems to be almost six of one and half-a-dozen of the other. That is perhaps why, in medicine, the *third* metaphysical school is so popular. This is the school of the dualists, who find two substances, mind and matter, existing side by side. There are many kinds of dualisms, but the most popular doctrine amongst doctors is that of psycho-physical parallelism, derived from the two-clock notion of Liebnitz. Psycho-physical parallelism, as applied to physiology and psychology of human beings, means that each physiological process has a concomitant psychological

act or process as counterpart, and *vice versa*. It may be restricted, as many seem to restrict it, to the operations of the higher parts of the brain, or it may be applied to the whole of the nervous system, in which case we postulate that unconscious psychical processes accompany all physical nervous states of the spinal cord or nerves. (Of course, too, this doctrine may be extended to cover all living things, and further, all material objects of perception whatsoever. Then we become what are called animists. But that does not concern us now). But the restricted form of psycho-physical parallelism, which supposes mind and brain to work in 'harmony' has a rather subtle practical value. Postulating that neither the one nor the other process has the upper hand, and that we cannot explain the connection between the two, it allows us to say that it is sometimes more convenient to tackle the physical series—to rub in mercury in order that a gumma absorb: and sometimes better to tackle the psychical—to employ suggestion or psycho-analysis in "appropriate" cases.

This leads to what used to be called eclecticism: one kind of case is treated by drugs or surgery: another is sent to the asylum. But the functional neuroses tend, amongst eclectics, to fall between two stools. This is the grave fault in the neurology of Hughlings Jackson and his pupils.

A quite different point of view—which I will call naturalistic—is, however, now coming into vogue. Those who adopt this are neither 'materialistic' nor 'spiritualistic' in their interpretation of the world. They regard mind and matter as different names given to different aspects of what is but one. According to them we speak of matter when we see what is outside ourselves, and of mind when we refer to what we are subjectively. I am not at all sure that there is not a catch in it when we come to apply this notion to psychology and to physiology; but it is very useful in medicine. Conceive a man who is shut up in his study in the upper story of his house. He is in the world of pure mind. He becomes aware of discord, commotion, and discomfort. He looks out of the window, and he sees what is going on outside, in the world of matter. No explanation there. He leans out and sees the walls of his house, as a man who regards his own body. All seems in order. He retires again and shuts the windows, but the disturbance and commotion, for which he sees no cause when he looks out of the window, continue. There is, as a matter of fact, internal discord in the kitchen—the region of the viscera—disturbing his emotional and better half, or sympathetic system—his wife, seated in her boudoir—the realm of the unconscious mind. We, called in as builders and surveyors, may try to restore order by

getting the drains to go and the stove to draw, but we should do even better, if, as spiritual advisers, we explained to our philosopher in his study that, did he exercise better control over his household, and pay proper attention to his marital duties, he would be able to pursue his studies to greater advantage. And such is the *rôle* of the physician in cases of functional neurosis.

At any rate, this analogy is of some practical utility, and, as you see, it does accord the last word, the casting vote, to the Inner Man—what we call the 'Psyche.' For, had our philosopher better organised his household to begin with, the discord in the basement and the irritability of his wife would not have arisen, and the drains and chimneys would have been maintained in better working order.

There is, however, just one more trend of thought that is not at all unhelpful, and that would, I think, receive greater attention had it not such a definitely theological atmosphere. I mean the dualism of St. Thomas Aquinas, now the official system of the Roman Catholic Church, according to which primary matter is informed by spirit, of varying grade, so that each object, or substance, is composed of welded matter and spirit, and therefore is what it is. In this way the ultimate supremacy of spirit or mind is secured while the dual aspect is not lost sight of. The non-theological view which comes nearest to this is the naturalistic one, just referred to. But clearly, on any shewing, for each of us, it is through our own mind that we come nearest to reality; it is by our own mind that we must control our body; and it is only by discussion of the various notions put forward that we can understand the issues, even if we may not be inclined to adopt any one solution.

If we now turn to what are called practical considerations in respect of the management, not of what we call organic cases, and not of what we call "mental" cases, we will find that in practice a method found useful in respect of asthmatic, of migrainous, vertiginous and neuralgic persons, of "functional" cardiac and dyspeptic patients, of mucous colitis cases, of the sexual neurotics, the prostatic cases and the anxiety, compulsion and hysterical neurotics, will be found by us increasingly useful in respect of what we have usually considered the "mental" cases and purely 'organic' cases. Nay: it will be found useful even in the management of a patient with a broken leg, at any rate so far as his insomnia and his contentment are concerned. And, does not that stand for much?

We must, in the first place, institute a complete physical examination, appraising the disorder of function manifestly present, and then estimating, so far as is possible, the organic change in the organs

that are not functioning well. This is, or should be, the normal clinical procedure. But something more is wanted. We must form some idea of the original efficiency of the organ or structure in respect of which complaint is made. We then find, for example, that the migrainous person and the neuralgic have usually some facial asymmetry, or some morphological defect: the asthmatics have imperfectly developed nares, epiglottides and larynges, and, if we dissect them, not only poor chests, but lungs that are imperfectly developed *qua* lobes. Our tinnitus and vertigo patients have poor external ears: our dyspeptics, dilated or ptotic stomachs: our cardiac cases small and pendent, or large and pushed-up hearts: our hypochondriacs and our colitis cases have long mesenteries, mobile colons, mobile kidneys and the like. Our sexual neurotics have small, or misplaced uteri, varicoceles, phimoses, pendent scrotums and so on. Our spinal neurasthenics, as well as many others, have rudimentary spinae bifidae, and a tendency to pes cavus and hammer toe—because the terminal spine is imperfectly developed. Nay: even our rheumatoid and arthritic patients, have, often enough, digits and limbs with which there is something wrong from the point of view of the sculptor, just as do many insane patients exhibit the most extraordinary skin peculiarities—strong evidence that the part of the epiblast from which the neural tissues are formed is not as it should be. All this comprises the study of *organ inferiorities*, as it is called—our philosopher has chosen a jerry-built house—and the organ inferiorities we notice in the neurotic are either in connection with the organs working badly —as when we see the small penis and long prepuce of the boy who wets his bed—or afford inferential evidence of other organ defect—as when the external auricle is malformed in a tinnitus patient—or else suggest a widespread deficiency, as do the segmentally distributed skin defects found in association with neurasthenia.

In the same way, many of the women with a " neurotic abdomen " have a fissured tongue, so that we can postulate a Meckel's diverticulum or something of that sort, while a neurasthenic miner with lumbago probably has a sacralized fifth lumbar vertebra.

The importance of such observations lies in this, that they reveal either a constitutional or a local inferiority to which may be transferred an emotional feeling that rightly pertains to something in the psychical life. To give a simple illustration. The actress with astigmatism, who desires not to appear on a certain occasion, because she fears her psychical nose will be out of joint, developes a headache (due to eye strain, she says) that gives her an *excuse* while satisfying her unacknowledged and unacknowledgeable desire

to vindicate her own importance. You may give her glasses: but her headaches will continue, on suitable occasions! Our war experiences help us to understand this. The shell-shocked man with 'cold feet,' who durst not acknowledge his cowardice, became deaf if he had a perforated drum: blind, if he had astigmatism or squint: paralysed in his legs, if he had spinal inferiority with hammer toes; and wetted the bed if he had a varicocele and a long foreskin. So is it only the woman who dislikes her husband who, with a retroflexed uterus, or a prolapsed ovary, suffers dyspareunia. She has no dyspareunia with her lover. Where there is a will not to do, there is always a way of escape from doing what should be done.

But this is going on too fast. Having completed the physical examination, in the way I suggest, we must proceed to examination of the psychical situation. There are various methods of performing this, but none can be properly utilised unless what is called the New Psychology be understood, at any rate in outline. The old psychology was a study of mind, based largely upon introspection, and so derived from investigation of intelligent, normal, and cultivated persons. It was governed largely by the assumption that the mind, like the brain and spinal cord, responds to stimulus in a predetermined sort of way. We tap the patella tendon, and the knee jerks. We present a stimulus to the mind, and we receive a normal response. So the psychical response was formerly held to be determined by the stimulus. *Mais nous avons changé tout cela.* The new psychology, largely based upon study of the neurotic, implies upon another theory.

We examine the response—that is to say, the behaviour—of the patient, and then work back, seeking, not for the sort of stimulus that would or should make what we think a 'normal' so act, but for the tendency that the patient is seeking to gratify by his, to us, odd behaviour. Thus, a busy man complains of strange cardiac sensations, or tells us he is irritable at home, especially with his wife. We, simple souls, used to tell him that he was overworked, and advised him to take his wife for a week-end to Brighton. Nowadays we find he is afraid of not carrying some business enterprise through successfully, and so seeks an excuse, in the state of his heart, for abandoning it! Moreover, he has just spent a week-end at Brighton with his pet typist, and is trying to justify his infidelity by finding such fault with his wife as will reconcile his conscience to the commission of acts of which he is ashamed! Probably, too, he left his fountain pen behind him at Brighton, and thinks his memory is failing! Three elements have to be taken into account if we would understand the patient. There is, in the first place, the

acknowledged, or unacknowledged, unsettled conflict or perplexity in the patient's mind. Secondly, there is a guiding tendency to be recognised, that is the result of past experience, ancestral as well as individual, for which satisfaction is somehow sought, in respect of every situation that arises. With this, there is the past life history determining why the tendency—the life-line—is as it is, and why the satisfaction is not *directly* sought ; the *reason* why it is sought alternatively, or, so to speak, vicariously. Lastly, there is the relevant organ-inferiority that offers the excuse for organisation of a " functional illness," and is so eagerly seized upon as the peg whereon is hung the vestment we wish to discard, so that we have not the burden of wearing it ; or that we wish to wear, and dare not.

There are almost as many methods of elucidating these matters clinically as there are theories of the mechanisms concerned. The chief theories and methods are those of Freud : of Jung : and of Adler.

Freud and his pupils, in method, rely largely upon the study of dreams, and of errors in speech, in memory, and in conduct ; and they seek above all to revive the earliest and most buried memories of childish life. Jung has devoted time and labour to the revival of hidden memories by the use of what is called word-association, as well as by free association and talk ; while Adler comes quickly to the point, states at once to the patient the outline of the problem, and then pursues developments.

The reason for these variations in technique is given in the respective theoretical views of the three great men I have referred to.

Freud finds the primary conflict in the sexual sphere, and deems the nature of the patient's reactions to all problems to be deertmined by his early sexual experiences, and especially by his attitude towards, and his experiences with, his Father and Mother. Sex-life in the past, is the Freudian explanation in a phrase. Jung finds the problem to be that of satisfactions of the *libido* here and now ; and by *libido* he means something far more than sexual desire. " Satisfaction in the present " may be said to be the formula of Jung. Adler finds ambition, the desire to assert superiority, to gain one's own ends, the great motive which, once baulked, leads to neurosis.

There is truth in each of these points of view, without doubt. We may say that each is on occasion the most convenient. None is to be regarded as final. When the complaint made to the doctor (whether it be of colitis, of vertigo, or of migraine, for example) lies chiefly within the physical sphere, and is obviously a complaint of

deranged physical function, then, without doubt, the factor of organ-inferiority, stressed by Adler, is of great importance, as is the play of the superiority motive in the psychical sphere. When the *complaint* is psychical, and there is an obvious sexual nexus, great help is derived from investigation of the Father-Mother relationships of early life, as stressed by Freud ; again, when the trouble arises from what is not uncommon, a conflict in the sphere of what I may call the religious and intellectual emotions, then teachings of Jung are particularly valuable. But, in no case can any element be overlooked ; in some, all three points of view have a measure of validity, so curiously interwoven and so complex is the psychical state of the neurotic. It follows, almost as a matter of course, that each physician tends to develop his technique in terms of his own life history, in investigation no less than in treatment. But for the general practitioner, and in relation to the class of case we are chiefly discussing, I think it is the technique, and in great measure the theory, of Adler—the theory that all conflicts reduce to a conflict between the superiority claim and the inferiority realization —that is the most useful, at the outset. Equally is it clear that investigation demands, on the part of the physician, something much more than acquaintance with the mere facts of medicine as taught in the schools. Unless there is a pretty wide knowledge of psychical types, of life-situations, of trends of thought, and of human nature in all its aspects, psychological investigation is impossible. The wider our own personal experiences, the greater our own knowledge of the human heart and mind as dissected in art and literature, and the fuller our acquaintance with the views held in respect of religious and philosophical problems, as well as of ethical difficulties, the more successful will our efforts be. Perhaps that is the meaning of the maxim that, at fifty, one is either a fool or a physician. The important point to remember is that, for each neurotic there is, not only some immediate problem which is not being decided, and in respect of which there is a conflict, an attempted compromise or some abortive repression into the limbo of the unconscious, some putting away of what is unpleasant or unwelcome : there is also a special attitude towards life in general which is adopted in face of almost every problem of adjustment, whether in connection with the family, the school, the opposite sex, society, one's profession, and religious, or irreligious inclinations. This attitude, however coloured, is generally one of indecision in practice, of irresolution, of procrastination and evasion, so that the conflict is never settled, and compensations for what is denied, satisfactions which are not openly claimed, excuses for what shames, insurances for what is feared—in fact, a whole cloud of " mechanisms " and arrangements

—are set up. Just so does the child complain of a stomach-ache when, for some reason of which he guards the secret, he does not want to go to school! Such is a simple case, and in practice, none is quite so simple as this. Yet there are certain very common correlations, as we shall see.

Now, while the first object of the psychical investigation is to lay bare all such mechanisms and arrangements, just as, in the clinical wards, we seek to picture the organic arrangements, the metabolic disturbances, and the microbic infections that lie behind the manifest symptoms of which the patient complains, the *second* object is that, after the picture has been made clear to the doctor, the patient himself may come to understand his or her own psychical mechanisms and the reason for his or her physical behaviour in this or that fashion or on this or that occasion. Then the therapeutic end comes to be fulfilled. To use a phrase that has perhaps been abused, the patient assumes conscious control of the disturbing unconscious factors, and, if the conflict is rightly resolved, well-being returns, all being done that can rightly be done, to assist, by physical means, the resumption of control, by the nervous system, of the visceral functions whose disorder has been the cause of advice being sought. The Neo-Platonic scheme of Plotinus is very usefully borne in mind at this stage. Let us picture the self as of three levels. The highest, or Nous, corresponding to our highest and most conscious intelligence, presides over a lower level, that of the soul (in the old terminology) and that again over the soma, or body. Suppose we parallel this, and speak of the conscious mind and brain, on the highest level; the unconscious mind, or sympathetic system on the next; and the viscera and animal life on the lowest. We then have a not unhelpful conception. Not very much unlike our analogy of the philosopher in his study! Each level depends upon control from the higher level, and may be disturbed by disorder in the one below it. And, I need not emphasize how, according to Plotinus, the highest balance and harmony is attained only so far as the *nous*, or highest level, is in accord with the highest perfection and intelligence of all. This, it may be said, is only, in other words, the doctrine of the Christian Scientist and the Salvation Army Evangelist. Perhaps, but it is also, in effect, the doctrine, though differently expressed, of Plato, of Confucius, and of Buddha.

Before, however, again touching on what are usually called really practical details, I would like to suggest as true, what all can easily verify, that some forms of psychical distress are more or less definitely correlated with certain physical complaints. The man or woman who complains of migraine or of trigeminal neuralgia is, I think I may say, without exception placed in some

situation that gives rise to an unexpressed, or unrecognised emotion of, to use Adler's words, rage and humiliation. The vertiginous neurotic is one who has constantly with him the fear of falling: morally, socially, or financially. Patients with tinnitus are patients who refuse to listen to some imperative call and the kind of noise of which they complain often gives a key to the difficulty. Those who are neurotic asthmatics are obsessed by an urge towards economy, (not always in respect of money), and who regret expenditure. The miser in a novel always wheezes! Whilst patients with true or false angina are angry and resentful "at heart" the ordinary case of cardiac neurosis suffers from fear, from anxiety, and, very often, from unacknowledged or unsatisfied sexual desire.

It is odd how a common phraseology helps us. We speak of a maddening head-ache, say we feel sick about something, have anger in our heart, or are in a piddling funk. These verbal combinations do indicate the psychical correlatives of physical states.

The flatulent dyspeptic has usually reason to resent, or even loathe, that which he is compelled, or thinks himself compelled to swallow: constipation is associated with sexual repression and avarice: diarrhoea, sometimes with a desire to be rid of this or that; and so-called colitis, not so much with a repression of sexuality as with an unsatisfied desire for sexual gratification. The physiological explanation of this is that the colon (though not the small intestine) is associated, *via* the sacral autonomic system, with the sexual viscera. Similar sympathetic associations can be traced in some other cases, but this is obvious, and the transference of nervous tension can be easily understood. Sexual *neuroses* are commonly associated, I think, with remorse or self-dissatisfaction in connection with sexual action. The man who is impotent with a prostitute may be thus protecting himself against sin or infection; and the syphilophobic has always, I think, fear or remorse for past or present wrong doing in his mind, and is trying indirectly to satisfy his conscience, or protect himself in respect of what he has not the moral courage to renounce. Paralysis, of the functional type, carries often the same kind of explanation, and the psychical element in sciatica, that *is* sciatica, is often very clear. It is generally the expression of a desire to shirk a duty or avoid a danger, and is associated with a sacro-lumbar organ-inferiority that can be demonstrated by X-rays. Of course, once more, I am only drawing the broadest outlines, but I will narrate just one case in partial detail. A middle-aged man consulted a surgeon for pain in the back. The surgeon found a lipoma in the region indicated, but refrained from removing it when he heard that the pain only occurred on certain occasions (such as entering a crowded drawing room) and

was associated with faintness. The patient was brought to me. It was soon clear that this man, on four or five occasions during his life, had endured what he thought unmerited hard luck, financially and in marital affairs. On each occasion he tried, unwisely and from real cowardice, to put a brave face before the world, and hide his griefs. At the time of his visit to me he had made a fortune, and had married, as he thought, happily at last. But his wife had suddenly become a hopeless invalid. He denied any early associations that might have explained his history, and we went on talking. Suddenly he flushed and sweated, and said, " Doctor, you are right. When at school I was thrashed for a lie I never told : I thought of suicide and fainted in chapel the next day. It is *that* pain, *that* faintness, that I have ever since suffered when I have felt punished unfairly."

After this conversation, the pain never returned. Moreover, the lipoma has disappeared. Was the lipoma a result of concentration, unconsciously, on the painful memory? Or, was the lipoma an excuse for its persistence ?

But now, the physical and psychical diagnosis being made, if not in detail, at any rate in such broad outline as is possible at an early stage, let us turn specifically to the therapeutic management of the case. Let the patient understand that there is both a physical and a psychical side to his unwellness, and outline the physical treatment necessary. It may of course be, and in eye, ear and other special cases often is, necessary to enlist the aid of a specialist friend. Such a friend, unless he is sympathetically inclined towards psychological investigation, is only too certain to put a damaging spoke in the wheel, effectually, and at an early stage. Even if he be sympathetically inclined, he may, by exceeding the limits of his own province, do more harm than good. Under such circumstances I would advise you to be careful to ask for just what you do want : namely, an opinion on the physical condition and too, without any discussion of the nervous element and its importance During the last year or two I have been unusually fortunate in having been able to rely upon the co-operation of my friend, Mr. Fleming, in matters ophthalmological, and we have been able to secure some extremely happy results, in migrainous and other cases, each giving due regard to the importance of the other's share in the task of integrating health. Whether or no the psychological treatment itself be undertaken by the general practitioner, or by a physician who has paid special attention to the subject, is another matter. So far as is possible, the physician chosen, if one be chosen, should be one who has general knowledge and sympathies, (as has Adler) rather than a specialist psycho-analyst : at any rate for the class

of patient we have now chiefly in mind. But I am all in favour of the general practitioner retaining full treatment in his own hands, if he feels himself competent and confident, and has had experience. A physician consulted may advise helpfully *once*, but cannot as a rule do much more, unless the psychical treatment is confided to him as whole-heartedly as is the conduct of an operation to a surgeon. It may be, and often is, advisable that this course be followed. If it is, let it be followed without reserve. It is impossible for intimate conversations to be held with the physician and the practitioner alternately: it is generally impossible for confidences to be repeated, and, above all, if full conduct is given to the physician, there is the less danger of the wearying and frustrating intervention of relatives who, too often, are predisposing and exciting morbific agents! In a word, if the patient's confidence is to be gained, it must be deserved, and kept. There are some other points to be considered. Even a superficial analysis is exhausting to the physician, and therefore interviews should be frequent, and so far as is possible, consecutive, though sometimes much may be done in less time than is usually required. The psychological examination and treatment of the young is a special matter, to which not enough attention is usually given. The advice of a physician of experience is here usually required, since the action necessary is not so much directed to the patient as to the modification of the circumstances of his life in a way that is not usually palatable to a misguided and obstinate parent.

On the other hand, prolonged attempts at psychical investigation are seldom very useful when the patient is over fifty or fifty-five, though something can be done sometimes, if done in the right way. But, what I may call psychotherapy has its fullest scope between the ages of perhaps twenty and forty. The aim of the physician must be, first, to help the patient to know himself, and to understand the mechanism and arrangements that he has unconsciously constructed around his disturbed area of conflict. He must be led to see where is the difficulty, and how compromise and indecision is no solution. He must be shewn, or rather led, to see that adjustment to the family, and to society, and to ultimate problems must be made. But the solution must not be dictated. The patient must herein minister to himself; he must work out his own salvation. And again, I would say that the method of Adler, which involves early categorical diagnosis on the part of the physician, and early statement to the patient, is the best: at any rate if the patient is one inclined to cry: "What must I do to be saved?" If, that is, he is really desirous of freeing himself from what as yet he has only partly confessed to himself.

The method of Freud presents special difficulties in the cases of which we have been speaking; it requires many interviews, and there is, first the technical difficulty of what is called resistance, and secondly, that of transference. Resistance is met with when communication cannot be opened up freely, and when interviews are postponed and avoided. The very nature of Freudian analysis often provokes this, in England, at any rate, since the relation of the inquiry to the urgent complaints is far from obvious to a patient who comes complaining of what appears to him a bodily illness. With Adler's method, the relation of the physical symptoms to a psychical state can be confidently pointed out at once. Again, transference, by which is meant the development of an attractive or repellant emotional state in regard to the physician, is better avoided, as under Freudian analysis it is not. Under Adler's technique, with less insistence on the sexual factor in any case, and with hardly any in some, the feeling that the patient comes to entertain towards the physician is, as it should be, free from embarrassment to either. But it may still be desirable that the physician be one who, if not an actual stranger, is at any rate not a participant in the social life enjoyed by the patient. His attitude should be, if not that of a pedagogue or a priest, at any rate one that involves a certain degree of apartness, of authority, and of prestige.

One word in conclusion. If a single formula is required in which to summarise the teachings of Freud, of Jung and of Adler, it may, I think be found in the teaching of the famous sermons of Bishop Butler. Butler reduced the authorities in the polity of the soul to two: conscience and self-love. The term self-love covers equally the pleasure-principle of Freud, the libido of Jung, and the superiority-aim of Adler. By conscience we may understand the countervailing impulses present in us all that tend in certain circumstances to inhibit self-gratification. I do not propose to discuss or consider whether a theory of conscience should be based upon the doctrine of an implanted intuition, or whether by conscience we should understand the operation of the sum of early teachings and experiences. But we all know what conscience is: there is no man, woman or child who has not experienced it, and we have all seen expression of its workings even in a pet dog. So, after all, there is common ground alike for Freud and for those who explain all physical and psychical ill as consequences of the Fall. In great part of what the new psychologists have to say, we are only learning anew, and in a new language, what was known centuries ago, but what, in the pride of modern scientific research, we have too carelessly forgotten.

And, if we read again the story of how Nathan the prophet dealt with David, we will realise that there are methods quicker and more searching than even those of Adler himself. Not a dissection : not a vivisection ; but an operation, the reduction of a dislocation, is what is required when psychotherapy is undertaken.

Again, one word more. The scope of the psychological interest in general practice is immense. Nothing could be more deplorable than diffusion of the idea that the pyschological investigation of the neuroses means the discussion of sexual topics with young girls, and psycho-therapy, the recommendation of fornication. I recently heard a celebrated surgeon say : " Freud : oh ! that's the feller who says copulation is the cure for everything ! " No : when the sexual complexes are predominant, the patient suffers, not because he or she is not physically gratified, but because, for one reason or another, a wrong attitude has been taken up in respect of the practical and ethical problems involved in Human Life.

TIME, NUMBER AND MEASUREMENT[1]

By J. von UEXKÜLL

For the discovery of a specific material for Time we are indebted to K. E. von Baer, who based his brilliant exposition of the subjective character of Time on the moment as the specific time-quality. Felix Gross has explained the close connection between Time and apperception, and we are now in a position to form a clear picture of the nature of Time.

Apperception is a life-process, carried out in phases, each of which manifests itself in a sense-sign ; this sign is the moment.

We must therefore employ the word moment-sign. According to Kant, the unity of the apperception creates the unity of our ego, which, although destitute of local signs, is always furnished with a moment-sign. As a consequence, all psychic processes, feelings and thoughts are invariably bound to a definite moment and proceed contemporaneously with the objective sensations. Time envelops both subjective and objective worlds in the same way and, unlike Space, makes no distinction between them.

In order to understand in what respect we can nevertheless distinguish between subjective and objective in Time, we must try to penetrate deeper into the nature of the moment-sign.

We have taken the local sign to be the smallest spatial magnitude into which the various qualities were poured in order to give us the atom : in like manner, we may compare the moment-signs with the smallest receptacles that, by being filled with a content of various qualities, become converted into moments as they are lived. Like the local sign, the moment-sign remains constant in its magnitude and intensity, changing only in its content.

We might be led to suppose that the content of the moment-signs would distinguish between their objective or subjective character. This is never the case. I may give myself up to my thoughts, or plunge myself into contemplation of a landscape ; I may even

[1] The present article forms part of Baron von Uexküll's *Theoretical Biology* which is to appear in an English translation this year in the International Library of Psychology, Philosophy and Scientific Method.—Ed. *Psyche*.

engage in observation of the movements of men and animals—the Time that elapses while I am thus occupied is always subjective. This, indeed, is not surprising, for the same process of apperception is gone through on each occasion, and with it appear its moment-signs.

For whether we are looking at objects or formulating thoughts, the same business of construction is initiated for the forming of higher unities from simpler elements.

The duration of Time that has passed—*i.e.*, the length of the series of moment-signs—we estimate with more or less exactness; but as soon as we turn our attention to a sound repeating itself in the outside world, the degree of exactness increases enormously. By the contrast, we can then estimate with unfailing certainty the number of unaccented moment-signs (the so-called intervals) that lie between those that are accented.

This enables us to set about making an exact measurement of Time from a change of sound in the outside world; and when we have found it to be constant, there is nothing to prevent us from employing this change of sound as a time-measurement in its turn. Even at the present day, watch-makers correct by means of accented moment-signs the swing of pendulum-clocks, which we then use to measure Time.

We can also replace the external change of sound by innervating our own muscles at equal intervals, dividing the moment-signs into accented and unaccented by our own regularly interrupted movement. We call this "beating time."

Beating time is a subjective kind of time-measuring which makes very great demands on the attention; therefore as a rule we rely on a change of sound that is independent of our own effort, such as the stroke of the second pendulum, which we describe as an objective measurer of Time. Objective time-measurement has thrust subjective into the background in such a way that we have come to regard even Time itself as an objective phenomenon, and this has naturally given rise to very serious mistakes.

Always and in every connection, Time remains subjective, since it is bound up with the process of apperception; it is only the measurement of Time which can be termed objective, in the case where the accentuation of the time-signs results from a change in sound independent of our own activity.

The behaviour of a conductor and his orchestra will serve as an interesting illustration of this. The conductor depends for guidance entirely on his own subjective time-measurement, which he slows down or accelerates by altering the intervals and moving his bâton now quicker, now slower. The bâton serves as an objective Time-

measurer for the instrumentalists, and according to it they have to direct the bowing of the violins and the blowing of the horns.

The ability to separate accurately the accented moment-signs from the unaccented and to vary this change itself, is very differently developed in different people ; which is the reason why all men are not fitted to become conductors of orchestras.

NUMBER.

Everyone possesses the power of beating time, even if only in a primitive form, and this power is the basis of computation. We are able to combine the individual time-beats into groups and to free them from one another in other groups. In this respect also there are great differences in natural talent. There are people, wrongly called " lightning calculators," who have a decided gift for constructing the most extensive and complicated groups. This power has nothing to do with real calculation, which depends on a conscious working with numbers and not on a grouping of beats.

Number is not an inborn natural creation, but an artificial product of the human mind, and it consists of an objective sign with which we describe the individual beats, just as a letter of the alphabet serves as the visible sign for a certain sound.

In the beginning, number may have arisen by a man's scratching lines alongside one another in the sand with his hand as it beat time. For even to-day, every school child begins in this way when he writes strokes on the slate at his first arithmetic lesson. By doing so, we succeed in making a connecting-link between the magnitudes of Time and those of Space, and we call this connecting-link " number." For just as the beat consists in the alternation of accented with unaccented moment-signs, so the row of strokes consists likewise of accented and unaccented local signs. The series of Roman numerals approaches the original type most nearly, except that in it every fifth stroke has a special shape so as to facilitate by group-formation a rapid comprehensive survey. The series of Arabic numerals has a special sign for each stroke from 1 to 9, and thereby offers important advantages for group-formation. For each Arabic numeral signifies not merely a certain stroke in the series, but also the whole group beginning with the first and ending with the stroke in question.

It is interesting to find that at first group-forming by writing lingered behind group-forming by special words for the numbers ; for spoken Latin, unlike written, possessed ten different designations for the numbers from 1 to 10.

The method often employed for giving children an idea of number by beginning with objects is really too circuitous. If one tries to

teach a child that 3 apples and 1 pear together are 4 fruits, that may only lead to confusion; for what the child really ought to learn—namely, to combine in groups its own regularly recurrent activity—is made more difficult for it by having its attention turned from the subjective beat to objective things.

The following will help us to a more profound understanding of the processes described.

If you consider the numerical series represented by any long row of strokes as the symbol for a series of beats which can be extended at will, it becomes evident that the making of numbers even in this elementary form requires very great abstraction.

Let us enquire how this abstraction is effected. On the one hand we have a sound recurring at intervals; on the other, an optical phenomenon, the stroke, likewise recurring at intervals. What common basis admits of these two things being interchangeable?

It is evident that what they have in common can only be the same change in the process of apperception, a change which appears both when we hear and when we look at written strokes. Since the process of apperception always releases a series of moment-signs, in both cases a change in the filling up of the moment-signs must appear. No attention is given to the fact that the content of the moment-signs is very different in the two cases; all that is felt as the same subjective act is the regular alternation of filling up and emptying the moment-signs.

The same subjective act also appears when we innervate our muscles in beating time. In the course of apperception, it always happens that certain moment-signs are noted especially. We call this power of noting certain moment-signs more than others, attention. And since we describe as "rhythm" any regularly recurring change whatsoever, we may in the last instance refer the power to form numbers to a rhythm of the attention. Now, according to the length of the interval, there are very different kinds of rhythm, which we distinguish from one another and are able to combine into entities. The so-called lightning-calculators have this faculty in an especially high degree.

To our attention it is a matter of indifference on what sort of content it is directed—whether on objects, or sensations, or feelings. As soon as there appears a regular change in the attention, it can be subjected to the rule of the simplest rhythm, *i.e.*, it can be counted. This peculiarity gives to number its almost unlimited applicability.

Calculating and Estimating.

Since it is possible to count up everything of which we can so much as form a thought, the resulting confusion has led to the

development of the art of arithmetic, the first principle of which requires that we shall reckon together only those things that have the same denominator. Thus it is inadmissible to add $\frac{1}{2}$ and $\frac{1}{4}$; $\frac{1}{2}$ must first be transformed into $\frac{2}{4}$, and then we may calculate that $\frac{1}{4}$ and $\frac{2}{4}=\frac{3}{4}$.

In the same way, we must not count up 3 apples and 1 pear straight away. The apples and pears must first of all be brought under the same conception of "fruit"; then we may calculate that 3 fruits and 1 fruit=4 fruits.

So it appears that calculation is not merely a summing-up of the rhythms of the attention; it also has regard to the content of the things to which the attention, stimulated by rhythm, is turned. Only by assuming like content can we institute a calculation having any real sense.

We take as the common denominator of regular movements the direction-sign; as the smallest magnitude of movement that remains always constant. It is quite indifferent what name we give to the direction-sign.

The difficulty is greater when we try to subject to calculation the regularly increasing intensity of a sensation. If, for instance, we hold a pail under a tap, we feel the steady increase in the weight; we can estimate it approximately, but we are quite unable to calculate it. Even if we let the water run in intermittently, that does not help us, for each time the estimation of the increase in weight is so uncertain that we dare not use it as the common denominator for calculation.

Weber has helped us out of this predicament in an ingenious way by employing as the common denominator the feeling of just perceptible increase in weight, and introducing for it the conception of "threshold." By so doing, he was able to compare subjective sensation of weight with the objective process and to set up a fundamental law. It can be shown, that is to say, that the same amount of water poured in by no means always corresponds to the same threshold, but that the amount of water required to overcome the threshold increases proportionately to what has been poured into the pail. If, for instance, there was one cubic decimetre in the pail, the addition of only one cubic centimetre is necessary to overcome the threshold; if there were already two cubic decimetres of water in the pail, two cubic centimetres would be required for doing the same thing.

The law according to which the threshold increases proportionately to the magnitude of the stimulus finds its application in all the domains of sense, so long as the qualities undergo no increase at all in their intensity.

Filling up the Moment-Signs.

In looking at a picture, it is important to choose our position so that it corresponds to the position from which the artist looked at his painting. Only then shall we employ on the picture the same number of local signs as he himself used. If we go to the right distance from the picture, the objects represented in it seem to us correct ; that is to say, they appear to form the same angle as that from which the painter looked at them. It is this angle that decides the quantity of locality-signs stimulated.

If we go too near the picture we see details that we are meant to overlook, because we are using more local signs on the representation than the painter on the thing he was representing. As a consequence, the picture gets broken up into brush-strokes. It is vain to expect that the object depicted will display more intimate details than the actual object itself does.

If the observer goes too far away he loses details, for he now uses fewer local signs than the painter put there, and the full effect of the picture is not realised.

How is it that we can go so much closer to the pictures of the older Dutch school (from van Eyck to Holbein) than the view-point of the painter permits, without what is represented being robbed of its verisimilitude ? And how comes it that the things represented, if we look at them from the right stand-point, seem much more real on the picture than the things themselves do, showing us details much better than we could detect them at a corresponding distance ?

My answer to these questions is that those great painters had at their disposal a much larger number of local signs than we. This enabled them to break up the world into a much greater number of " places," and these furnished them with many more object-signs. The world of these artists was larger and richer than ours.

On the other hand, it is undeniable that, with the work of some of the more modern painters, the man looking at the picture can see nothing but brush-strokes, from which, even with the best will in the world, he is unable to form objects. Putting aside cases of sheer arbitrariness, this can only mean that the painter has fewer local signs than the observer.

Let us assume that the observer has 10 visual cones to a square millimetre of retina, and that each of these cones stimulated one local sign, then the painter of the rich world would have 100 cones to the same unit of surface, and the painter of the poor world only 1.

The aim of all this argument is merely to make it easier for us to use the same ideas with regard to Time, and we shall now

proceed to do so. We have seen that the same picture of the world when broken up into more numerous places must of necessity be richer and larger ; in the same way, life must be appraised not according to the number of years that it covers, but by the number of moments lived through. The life of two human beings who were born on the same day and who died on the same day, may be very different as regards duration and in richness in experience, even if their fates be identical. Let us take an instance. While the second-pendulum swings to and fro once, A lives through 10 moments, B, on the other hand, 20 ; the life of B will accordingly last twice as long and will be twice as full as the life of A.

If we assume that the stimulation of the moment-sign is connected with the combustion of a certain quantity of oxygen in the brain, then A burns up his oxygen more slowly than B.

As the local sign represents for each human being the absolute measure for Space, so the moment-sign gives him the absolute measure for Time. It is only when we compare two individuals with one another that the two measures become relative ; but we must not conclude from this that there is such a thing as a real Space with its absolute measure and a real Time with absolute measurement. The attempt to introduce absolute Space and absolute Time comes from the observer who is investigating the relativity of two subjects necessarily taking as the basis of comparison his own Time and his own Space.

The illusion of absolute Time is heightened by objective measurement of Time, which tries to read off from the same clock everything that happens in the world from the pole-star to the southern cross. As is well known, the most modern physical theories have shaken this doctrine to its foundation.

K. E. von Baer has given us a very striking description of the change that would come over our picture of the world if the number of our moments, which at present extends over 80 solar years, held the content of only eight years, or of one year, or of one day, or of one hour ; and he has shown what would become of our knowledge of the world we live in if the same number of moment-signs had to cope with the content of from 800 to 8,000 solar years.

These speculations of von Baer's teach us that, assuming sensory activity to remain unchanged, our world of movement would come to a standstill if its duration were abbreviated or lengthened beyond a certain point.

Let us take as an example the spoke of a wheel, the turning of which we can clearly recognise, and let us first slow down the motion and then speed it up ; the movement is of the same kind throughout, but in the first case we shall accompany it with many

moment-signs and in the second with few; nevertheless, in both the movement ceases. If the spoke goes round as slowly as the minute-hand of a watch, it seems to stand still all the time, because the change in position is so slight that we do not perceive it. If we let the spoke whirl round very quickly, we see nothing in the wheel but a uniform clear area, which, as the revolutions continue, persists as a sort of thin veil.

The same thing would result if we were to crowd the world phenomena into very short duration, or if we were to stretch them out very greatly, so that in the first case they were framed, as it were, by too many moment-signs, and in the other by too few. If there are too many frames, the pictures that succeed one another are too much alike; if there are too few, the content of many pictures is squeezed into one. In the first case, a ball thrown into the air would stand still; in the second, the sun would describe a gleaming arch across the sky.

The rule runs as follows:—a moment ceases to be perceived if its gradient is either too steep or too level.

Threshold.

In order to exhibit the causes of these laws, we must have recourse to the idea of threshold, as originated by Weber. Threshold means the just perceptible difference between two intensities of a quality. It can be used in the same way, however, to mean the differences perceptible between two qualities. If we compare together two adjacent local signs, it appears that the difference between them is so slight as to be inappreciable, *i.e.*, it lies below the threshold. If that were not so, and if each local sign lay alongside the next without there being any intermediate steps, the whole world would consist of coloured points. It is only because the difference between two adjacent local signs is imperceptible that the world-picture is continuous, for continuity means nothing but an imperceptible transition, in contrast to one that is abrupt.

The same holds good for direction-signs, whether they be objective or subjective. It is merely because the difference between two adjacent direction-signs lies below the threshold that a movement appears to be continuous.

The continuity of Time depends also on this state of things. If the moment-signs were perceptibly separated from one another our life would proceed by tiny, separate jerks.

For a continuous movement to be appreciable at all, several conditions must be fulfilled. Apart from the proviso that the movement must include more than two direction-signs if it is to be perceptible, the direction-signs must stand in the right relation

to the moment-signs. If all the direction-signs are comprehended within two moment-signs, then the whole path traversed is interpreted as a synchronous unity and the movement is suppressed.

But even if there be a sufficiently large number of moment-signs as well as of direction-signs, the movement may yet pass unperceived; as, for instance, when one direction-sign falls on several moment-signs. The movement then remains below the threshold, because the content of one moment-sign is not appreciably distinguishable from that of its predecessor; for the observer, this means that nothing changes.

It is only when, in a series of moments, several direction-signs coincide with one moment that their content is differentiated, and movement is perceived.

The rule that a movement is perceptible only when its gradient is neither too steep nor too level is rendered intelligible through the introduction of the threshold; moreover, this conception makes it more clearly defined. On the one hand, movement must be slow enough for all the direction-signs to occur within three moment-signs, and on the other hand it must be fast enough for at least two direction-signs to occur within each moment-sign. If these conditions are unfulfilled, there is no movement initiated; everything is stationary.

Calculation of the Rule of Movement.

In order to make susceptible of calculation the relations between these fundamental qualities of Space and Time, it is necessary to consider them as world-factors. So long as we consider local signs, moment-signs and direction-signs as mere qualities of our mind, they remain three non-comparable magnitudes. But each of these elementary magnitudes has its task to perform in the world, and then it comes into correlation with the other magnitudes, which can be expressed in numbers.

For all three qualities, the task prescribed is the same. Each serves as the smallest receptacle or the smallest frame for other qualities which, only by being so enclosed, become part of the cosmic system. Local, moment and direction-signs renounce all claim to being Content, and endow the world with colour, scent and sound. It is entirely due to them that an orderly construction of the world is possible; and for that reason they may be called the elementary organisers of the world. None of them ever alters in magnitude and intensity; and so they furnish us with, as it were, a stable currency which makes the world secure. This unchanging, stable currency is the ideal denominator, employed in every calcula-

tion concerned with measuring the world, as regards either Space or Time.

It will make things clearer for us if we use a different terminology when we consider the three qualities as elements of the mind from what we use when they are considered as world-factors. We have already contrasted the place, as the smallest indivisible world-factor, with the local sign as the mental element ; in the same way we contrast the moment with the moment-sign. It is only when we come to the direction-sign that we find ourselves in a difficulty, because the word " direction " does not contain the idea of a very small entity. But since a series of direction-signs signifies a definite progression in one direction, we can set each direction-sign parallel with a step and speak of direction-steps. It is only close at hand that we are made aware of direction-steps in the dimension of depth by means of direction-signs ; for greater distance we must avail ourselves of other aids, such as distance-signs. Therefore it is appropriate in such a case to speak of distance-steps.

Accordingly we shall describe moment, place and step as the three factors of the cosmic order to which in calculation we must have recourse as the final, indivisible elements.

Since no world is applicable generally, the three world factors have no universal value, but are restricted to the special world of each subject, and they must not be applied directly from the world of one subject to that of another. In order to make things more intelligible, we have made a kind of compromise and have chosen certain measurements of Time and length which we all employ in our own world as so-called objective measurements. If we are trying to get a real insight into the worlds of other subjects, we must each of us refer to these standard measurements the particular world-factors by which we measure things in our own world.

Since we are as yet without reliable measurements of the kind, I shall limit myself to indicating how, by means of the movement-formula, we may deduce the length of the direction-step. The length of the moment is estimated, on the average, as one-tenth of a second. On the dial of a very large clock with minutes of one centimetre in length, the large hand begins to show appreciable movement when I am five metres from it. Now, according to the rule of movement, at least two steps fall within one moment (= 0.1 seconds), so if the movement is to be perceptible, in one centimetre 1,200 steps must be made to the minute. This gives 120 to the millimetre, and accordingly the length of each step is about 0.01 millimetre at a distance of five metres.

This is not the place in which to discuss the methods that enable us to make an exact measurement of the interval in Space between

one place and another, or the interval in Time between one moment and another. We shall merely point out that for the first time the possibility is indicated here of expressing in the conventional time and length-measurements the absolute units of measurement of the subjective worlds.

If we should succeed in bringing these absolute subjective measurements into harmony with the objective structure of our sense-organs, there would be some prospect of initiating, by a strictly scientific method, a comparative cosmology of human beings and the higher animals. Let us take an instance. Suppose that the distance from rod to rod in the human retina corresponds not only to the distance from one place to another, but also to the length of a direction-step in the human world, then a knowledge of the measurement-relations in the retina of an animal would give us a clue to the place, step and moment in the world of that particular kind of animal.

The Influence of Absolute World-Measurements on Our Existence.

It is suggestive that, as the number of places in the world increase, so also does the size of the objects surrounding us, and their details correspondingly multiply. In such a case, the whole world seems to expand on all sides and become fuller. We get some notion of this by looking through a magnifying-glass. But we must bear in mind that this artificial increase in size of individual objects takes place at the expense of their neighbours; the magnification by the lens depends on small sections of the field of vision being perceived by more optical cones of the retina than in normal sight. If, for instance, I project the image of a horse-chestnut leaf on the visual surface of my retina, which normally would hold the entire tree, the tree itself will disappear from the field of view.

But that would not happen if I could give to my retina a correspondingly larger number of rods and cones. Then the whole section of Space represented by the chestnut leaf would remain equally large in proportion to the whole optical surface, but it would include now as much detail as previously the whole tree did, and the tree itself would acquire a corresponding increase in detail.

In a world of such huge dimensions, crammed with innumerable details, quite valueless for the requirements of our existence, we should feel extremely ill at ease.

If we assume that the moments did not change, then the sun, whose forward gliding is, as things are, imperceptible to our eyes, would acquire colossal speed in order to cover, in the same length of time, the vast span of the heavens. The shadows of the giant

trees would be in perpetual movement. The movements of all living objects would seem to us to be accelerated ; even the snails would hurry by at the speed of a trotting horse, and we ourselves would move about through this monstrous Space as swiftly as express trains.

Assuming, on the other hand, that the moments correspondingly shortened, then all movements would remain of normal size, but for their execution the day would stretch out to excessive length, and soon we should no longer be able to cope with the strain imposed by this super-world.

If we imagine our powers also increased in the like direction, we should become super-men, as possibly—if but in a limited degree—the great artists and geniuses actually are.

Following up this line of argument, it is not difficult to construct for ourselves a picture of the " subter-man " with his miniature world. And it would not be uninteresting to establish, by means of measurements, to which of the two types our individual fellow-men approximate most nearly.

In each case it will appear that the duration of the moment stands in close relation to the number of places and to the length of the direction-steps, and this relationship again depends on the power of the mind to form an estimate of the world.

How closely the world, in regard to its spatial and temporal dimensions, hangs together with our requirements and our faculties, can be demonstrated by innumerable examples. I will refer to only one other instance—the beneficial effect it has on us that the tree-shadows in which we are resting also seem to be at rest ; on the other hand, every movement of the twigs produced by the wind or by a bird, reveals itself as a movement of the shadow and awakens our attention. Thus what is going on close at hand is thrown into effective contrast with the repose that the imperceptible progress of the sun spreads over the world.

The purposeful connection between the dimensions of the world, eternal both as to Space and Time, and our own everyday requirements, is easily explained if we remember that it is our own qualities which are the moment-signs, local signs and direction-signs providing the absolute measure for our world, and that eternity can be inferred from the form of the order-signs.

WHY TIME FLIES

By ADELYNE MORE

As was justly, though without great originality, remarked by the aged philosopher who, in the "Vicar of Wakefield," so ingeniously swindled Moses, the Cosmogony, or Creation of the world, has ever exercised the minds of men. We, a little less confident than forty years ago that the Spencerian and Darwinian doctrines summarize all we can know or need think, in the matter of this Cosmogony, have lately turned our attention, a little hesitatingly, towards the examination of some concepts taken for granted by the more ingenuous of the followers of Darwin and Spencer. And perhaps, forty years hence, the special and general theories of Relativity associated with the name of Einstein will be remembered, not so much in respect of any true light they may be thought to have thrown upon the Universe, as by reason of the fact that they compelled physicists and "men of science" generally, to take an unwonted interest in the psychological and metaphysical problems involved in the examination of what we mean when we speak about Space and Time. To the psychologist, and to the metaphysician, Time imports an even more fundamental interest than does Space, and the phrase TIME FLIES is pregnant with implications and with mystery.

Physicists do generally achieve some kind of verbal definition of Space; and few of us would refuse to admit that, although a little hazy about Infinite Space and its dimensions, we do, nevertheless, carry with us some conception, some conviction, of the reality of a Space in which we live and move and have our being. "Our spatial conceptions depend upon our sensuous perceptive powers"; to that extent our notions concerning Space may be said to have some objective basis.

But no physicist has yet achieved even a verbal definition of Time. One of our best astronomers, in discussing Time, contents himself with telling us that Time is measured by successive phenomena occurring at regular intervals. But, since the *regularity* of successive intervals cannot be ascertained unless we first know how to measure times, the definition—not one of Time, but of the

measurement of Time—does not seem more helpful, and is certainly less sincere intellectually, than is Oscar Wilde's dictum concerning Art—that the mission of Art is to be Art.

Time is, indeed, a conception even more fundamental than is that of Space, and one less susceptible of formal discussion, for it cannot be said to be *entirely* conditioned, as is our conception of Space, by our "sensuous perceptions" At any rate, it is not, as Space may be said to be by those who are not Kantians, entirely conditioned by our sensuous perceptions of what is external to ourselves.

In our candid moments, perhaps, most of us are inclined to say with St. Augustine: "If no man ask me the question "What is Time," I know; but, if I pretend to explicate it to anybody, I know not. And yet, of what do we more familiarly and more knowingly seem to speak, than of Time?"

Perhaps we may say that for each of us the conception of Time, inexpressible in words though it be, is one which, while partly based upon "sensuous perceptions," yet involves an integrating interpretation of these perceptions in unison with data which, whether categorical in the Kantian sense, or physiological in origin, are purely subjective in a manner which the "sensuous perceptions" just spoken of are not. All attempts to explain our conception of Time as *entirely* derived from observational experience of the motions of the heavenly bodies—or, from what is ultimately the same thing, the realisation of *change* around us—break down under examination as decisively as do purely Kantian "explanations." They depend, for their fugitive success, on the acceptance of some assurance no more comforting than the astronomer's statement that we measure Time by the equality of the parts into which we divide it. How do we know that these parts into which we divide it are equal: that these intervals by which we measure it are regular?

St. Augustine himself exposed very effectively this same fallacy—the fallacy of confounding Time with Motion—and declared, with extraordinary prevision, that he conceived it as a kind of extension. And, oddly enough, he hinted, not obscurely, what few if any in these later days have cared to suggest, that, if we were to think to measure Time by observing motions only, we would be unable to detect the occurrence of what now-a-days would be called a FitzGerald-Lorentz contraction of Time itself. It is indeed quite amusing to speculate on what would be the state of affairs did a FitzGerald-Lorentz contraction of Time actually occur, now and again. Just as for a few moments the results of the famous Michelson-Morley experiment were explained (before

Einstein came to the rescue) by supposing that solid bodies did, under certain circumstances, contract in a certain dimension, so could we not explain quite many difficulties by supposing that Time does—sometimes—fly much faster than at others? Should such a temporal contraction occur, temporarily, should we be aware of it? Can we, indeed, be sure that such contractions,or expansions, do not occur, and that we are not aware of them?

Let us postulate, what is certainly not inconceivable—since it is almost universally conceived—the existence somewhere in Space of an Absolute Time Recorder. Did the revolutionary motions of the whole Universe, as known to us, and those of each component in the Universe except ourselves, sustain, now and again, a retardation or acceleration, relatively to the Time of this Absolute Time Recorder—to whom, for the moment, we should deny ourselves access—should we become aware of these retardations or accelerations? Probably we should not become aware of them *as such*—nay, certainly we would not—but we should become aware of some difference in the conditions and circumstances of our lives. And for this reason. Each of us carries within himself what may be called a timepiece—his heart. This beats, normally and relatively to the clock, at a fixed though variable rate; if, that is, a rate may be both fixed and variable. That is to say, between the rising of the sun on one morning, and its rising again on the next, the heart of each one of us will beat some 105,000 times. During the night it will beat, as we say, more slowly: towards the dawn, more slowly still. But, as the day passes, it will beat more quickly, and in the evening more quickly still. During the year there will be variations in the number of heart-beats per day, corresponding to the successively earlier (as we say) or later (as we say) risings of the sun. But, twice in the year, at the moments of equinox, there will be pulse-beat-days of equal length. Now, of these recurrent and rhythmical heart-beats, and of the associated and more variable, though still regularly variable respiratory rhythms, we are and must be subconsciously or unconsciously aware; from time to time, and especially when the rhythm is disturbed, we are consciously aware of them.

To the physiologist, and to the psychologist no less, it should be clear that our conception of Time is derived from, and our appreciation of the passage of Time is based upon, the integration, interpretatively, of these subjectively presented and *not sensuously perceived* (in the ordinarily accepted meaning of the term) data, with appreciation of movements of the heavenly bodies and of machines like clocks operating in relative concordance with them. The *idea* of regularity seems to arise from appreciation of a certain

concordance between these involuntary bodily rhythms and the external rhythms and recurrences that we observe with our "senses" —by our organs of perception. It follows from this that a rupture of this concordance, or a variation in its terms, would lead us to say (as we do in fact often say) that Time is passing more or less slowly, or quickly, than is usual. And the expression is justifiable, if not actually highly commendable. If, as Benedicks says, in a changeless world there could be no Time, and no signification appertaining to the word, are not children and old people, in whom the pulse beat is, relatively to the sun, more frequent than in adults —are not these justified in finding Time to pass more slowly than do adults? And, as the child grows up, and his pulse beats, relatively to the sun, more and more slowly, is he not justified in saying that Time passes more quickly than it did? Again, when we fall sick of a fever, and our heart-beats are, in terms of the clock, more rapid than their wont, does not Time pass on leaden wings? But, when we sit down and read, without regard to the clock, and our attention is quietly fixed on the book, our pulse slowing down withal, are we not, on looking up again, surprised to find how Time has flown? On the other hand, when, under circumstances that provoke strong emotional reaction and acceleration of the heart rate, our attention is entirely fixed on what is passing around us, we are as strikingly convinced, when our attention is released, that the clock should have advanced more than it has done. One of our most distinguished psychiatrists—Dr. Claye Shaw, happily still with us—once related a very interesting incident. Compelled on one occasion to witness a judicial execution, and having entered the gallows-shed as the clock of St. Sepulchre's commenced to strike Eight, it was with a sense of physical shock that, on passing out, after what seemed a prolonged experience, he observed that the hands stood at but five minutes past the hour! So too, when we leave the theatre and pass into the street after several hours of complete absorption, there is a sense of Time-lapse equivalent to that sustained by any one, to whom holidays are unfamiliar, when he returns home after a week-end that has been charged with emotional experience. Perhaps then, once again, children speak more wisely than the wise men when they say that Time has passed slowly or quickly, and when they refuse to judge of its flight by reference to the fictions and conventions of the clock and the calendar.

Nevertheless, the prime question remains unanswered:—Is Time, as estimated by the revolutions of the heavenly bodies, constant and unvarying in an absolute sense? What if accelerations or retardations, of the which, for lack of a Absolute Time

Recorder, we know nothing, do occur ? If such do occur, without doubt there would be at least apparent perturbations in the bodily health of at least those communities of individuals not furnished with any compensatory mechanism, or means of adjustment. For them, unless bodily rhythms are linked with astronomical rhythms, a retardation or acceleration of ALL astronomical bodies (if harmonious for the astronomical system) would involve a rise or fall, as the case might be, in the pulse and respiration rates of all persons in the unadjusted communities, or for all unadjusted persons in all communities. And doctors would diagnose Influenza, without any doubt ! What is curious is this, that, during times of general sickness, or of general commotion and disturbance, it is not uncommon to hear repeated, by different persons, and many times a day :—How quickly, or how slowly, Time is passing ! But, how do we know that it is not so passing ?

Professor Benedicks, of Stockholm, whose recent book on Space and Time is deserving of close attention, has made some observations concerning Time, strangely disconcerting to the Einsteinian Relativist. Like Heraclitus who, when Thales of Miletus appealed to the fundamental notion of immutability, countered by declaring that ALL THINGS FLOW, Benedicks, while deriving the notion of Space from that of immutability, insists on deriving the notion of Time from that of change. While in advance of the quite materialistic physicists—if such there be—and the many more who are scholastic Realists, in admitting our notions of Time to be of subjective rather than of objective origin, or at any rate not to correspond to anything directly presented in perceptual experience, he yet, rather oddly, seems to ignore the physiological, apart from the perceptual, basis of our conception of Time. A man, blind, deaf and paralysed from birth would, we imagine, have no such conception as we of Space, if indeed any at all. But, would he not have at any rate some notion of Time ? If, as surely we must, we answer Yes—for our paralysed and senseless man would still be sensible, consciously or unconsciously, and as an organism, of his bodily rhythms,—we may still accept what Benedicks asserts, that the conception of Time has signification *only* for systems that change. The change need not be external to the organism, for, while there is life there is change, even if not change in extension and so such change as would give rise to any notion of Space. In a sense then, Time is registered by every living creature : by everything that *lives*.

Benedicks, in his criticism of Einstein's Relativity as a theory called forth by the necessity of either rejecting or supporting the undulatory theory of Light, seems to hesitate on the brink of another

problem intimately related to that of Time: the question of the Velocity of Light. He insists that the velocity of light is not independent of the motion of its source, as the generalized theory of Relativity requires it to be. He is all for an emission theory of light, in the fashion suggested by Ritz, the brilliant young Swiss, whose premature death in 1909 was so great a loss to science. Acceptance of an emission theory of light renders acceptance of Einstein's theories unnecessary, and relatively inconvenient, since they were devised to support, what is not at all necessary, the undulatory theory of light. But Benedicks does not raise formally, although he suggests incidentally, the question whether we need consider light to have a measurable velocity in the sense in which we commonly employ the phrase.

Benedicks has, however, a theory of simultaneity that suggests what to some physiologists may be a delightful, to others a repugnant, thought. This is that, as we have already hinted, there may be, not independance, but dependance between physiological rhythm and the astronomical or cosmic rhythms. For he thinks of Space as *solid* in such a way that absolute synchronism may be conceived of as existing, in the case of two distant " stations," in such a fashion as is secured between two wheels of a locomotive connected by means of a rigid bar.

The old physicians would have welcomed such a notion, no less eagerly than would have such scholastics as Dante and such mystics as Theresa. For nothing could be more suitable to their ideas of a pre-ordained harmony of the universe, disturbed only by the rebellion of component elements against that Primum Mobile by which is " moved equally, as a wheel is rolled " " the sun, and the other stars."

At the same time it is possible, if not actually proven, that, as Dr. Smith Ely Jelliffe has suggested, by means of the sympathetic nervous system the physiological rhythms of our heart and other organs are kept in unison (save during illness) with the cosmic rhythms or the general and Aristotelian motion of the Universe.

Desfosses, who, in the *Presse Médicale*, emits from time to time in the best French style, his divers *Réflexions sur l'Univers et la Vie*, has recently touched upon this topic of Time.

Indirectly, while gibing not unkindly at the palæontologists who treat Time, not as an old man with a scythe, but as an artisan who moulds races and species, he suggests to us that, if we accept the theories of Relativity as giving an account of the universe, the conception of evolution, in a Darwinian sense, loses all historical value and becomes merely an interpretation, that may or may not hold good, of events in a particular frame of reference. More

precisely, he asks us with what warrant do geologists and palæontologists assume the changes with which they are concerned to have proceeded at the same rate during the whole of the Time they postulate to have elapsed since—since When ?

In other words: why do they assume that Time has always flown as quickly, or as slowly, as Now ?

Desfosses, with some justice, distinguishes three sorts, or orders of conceptual Time: Psychological Time—perceived by "notre conscience": Physical Time—judged of by the motions of things; and Mathematical Time, which results from the importation of the notion of Physical Time into the formulas of the Calculus. Much that he says concerning "Psychological Time" and its blending with "Physical Time," is worth consideration, no less than is his restatement of what every child has thought when first introduced to the notions of the velocity of light and the distance of the stars. If these notions are TRUE, then, when an astronomer observes the heavens, the apparent positions of the various stars are representations of the relative positions of the respective stars at the various moments when the light rays, now falling together on the astronomer's retina, departed from the then differently placed and respective stars. "We receive, on the same photographic plate and at the same moment of Time, a ray of light that left Vega forty-seven years ago, and one that left Lyra twenty-five years ago!" Where is, or was, either Vega or Lyra, then, or now ?

"Mais où sont les neiges d'antan ?
Mais où est le preux Charlemagne ?"

Nevertheless, it is impossible for us not to think of the relative positions of these stars, at any given moment, otherwise than as that they would be did light pass instantaneously from them to us! What if indeed it does so pass ? How was the "previous question" that light has, in the ordinary acceptation of the term, a velocity, determined *before* the velocity, now assumed for the purposes of experiment, was measured ? To what extent are the mathematical results given by the physicists as expressive of the velocity of light capable of interpretation (on the assumption that light has no velocity, but is instantaneously pervasive) as measurements of the physiological processes involved between the retina and the cortex, and of the intervals necessary between successive stimuli in order that each successive stimulus be separately appreciated by the cerebral cortex ? Did Römer, when he "proved" that light has a velocity, pay heed to the subjective and psychological aspects ? Indeed, until these questions are plainly answered by

physicists for the benefit of physiologists and psychologists, it would seem, to the latter, that the mathematical status of the velocity of light is not in much better case than the astronomer's suggestion that Time can be measured by the regularity of the "intervals" of which it is made up. Time flies. Yes: but at what rate?

As Desfosses observes, whether we study the question of Time as physicists, as mathematicians, or as metaphysicians, "on arrive à des abîmes insondables."

Time flies. "How then can it be measured? We measure neither times future nor times past, nor present times, nor passing times: and yet still do we measure times." To his own question St. Augustine gave part reply, saying, "In thee it is, O my mind, that I do measure my times."

RELIGION AND PSYCHOLOGY[1]

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I

In considering how far psychology can throw light upon religion, it is desirable to set out from some general conception of what Religion is. Religion itself is a state of mind, a mental attitude towards the universe : it is an attitude which we take up towards the totality of existence. Now there are many different attitudes with which we may face existence. We may meet it with a question, as we do in asking what it is, what is the universe and what are we as parts of the universe. We may endeavour to get to know the universe, and in some mysterious way we do succeed to some extent in understanding it, as a general system of physical and mental forces. Or again, we may enjoy the universe as a work of art or a collection of works of art. We may appreciate the beauty of the scenery and other things about us. We may deplore ugliness which we find intermingled with that beauty. Thirdly, we may face existence from the point of view of duty, of what should be done, or more adequately, in the light of the idea of the Good. There are, then, these three general all-inclusive attitudes towards the universe : (1) a cognitive attitude, based upon the desire to know ; (2) an aesthetic attitude, based upon the desire to appreciate, to do full justice to the beauty of existence, and perhaps to play some little part in adding to that beauty, if the individual is an artist ; (3) an ethical attitude, based upon the desire to achieve the highest good possible in individual conduct.

Is there a further general attitude remaining over after these three attitudes have, I won't say received adequate satisfaction, but at any rate have discovered their appropriate fields of activity ?

[1]Being a lecture delivered in Oxford University, October, 1924.

There seems to be such a field in the experience of personal relationship towards the universe as that upon which we completely depend. That is, there is an attitude of complete dependence upon the universe which is distinct from the cognitive, aesthetical and ethical attitudes. This attitude was first singled out by Schleiermacher as the essential element in the religious consciousness. But if we analyse the situation psychologically, we find that there are other forms of experience in this attitude besides the experience of complete dependence, and these additional forms of experience have been well analysed and described by Professor Rudolf Otto in his recent book, *The Idea of the Holy* ('Das Heilige'). He shows very clearly that the feeling of dependence which is characteristic of the religious attitude is not one of merely causal dependence, not the experience of being a link in a series of causal processes, just a link in the chain of causation, but something still more thorough-going, the experience of what he calls creaturehood, that "It is God that hath made us and not we ourselves." We have been made by Him and so we are completely dependent upon Him in that sense, made by Him and therefore entirely in His power. And then there are the further feelings called out in our mind by that idea, the feeling of His infinite power, the feeling of the tremendous, of complete otherness, something entirely different from ourselves, the feeling of mysteriousness, of majesty, and of fascination in which fear and attraction are blended.

I am taking this particular line of approach to the problem because it seems to me that in this way one can avoid so much of the arguing in a circle that is to be found in the historical approach, which is the usual so-called scientific approach to the question of the religious sentiment. Usually we find introductory chapters on lower forms of religious observance, and we have explained to us how, in the course of evolution, there must have been a pre-religious state in which magic figured largely. In magic the individual attempted to get his own way with the powers around him by spells and incantations, and then later, as a result of failure, relative or absolute, of these spells, the individual turned from the attitude of magic to the attitude of prayer or supplication, and at the same time passed from polytheism to a form of monotheism. Along this line of thought, according to this natural history of religion, one is given the impression that the higher forms of religious feeling and religious insight are simply products of lower forms of mental activity: religion has grown out of forms of consciousness that could not themselves be called religious. In a similar way, attempts have been made to explain knowledge as a development out of mental processes that are not themselves

knowledge, the sense of duty as a development out of simpler mental processes not themselves involving the feeling of obligation, the appreciation of beauty as a development out of forms of mental experience not themselves involving beauty, but merely sensations of pleasure and displeasure. Such an approach to the problem of religion is inadequate, if not positively misleading. In considering this subject, we need to take a broader view. At the commencement at any rate we must start from a philosophical outlook rather than a merely psychological one. What is first in philosophy is last in science.

For the merely psychologically minded, progress in the science of knowledge, and the other mental sciences too, might be presumed to mean a greater and greater restriction of the field of religion, and to some minds, at any rate, an ultimate explaining away of religious experience. It was fear that in the beginning of things created the gods, and through knowledge the scope of that fear has been ever more and more reduced. But what has really happened is rather this. Starting with a general attitude towards life, in which these various values of experience were not distinct from one another, where science and religion, ethics and aesthetics were all mingled together, the development of knowledge and civilisation has brought about a gradual separating out of these attitudes—each attitude, as I said at the beginning, has achieved its own general sphere of reference and of fact,—and yet we find, after the claims of what may be called the profane sciences have been met, that there is something left over, viz., the distinctively religious experience itself.

It is true that this religious experience has been specially closely associated with ethical experience in the course of mental development in the individual as well as in the race, forms of worship and religious appreciation have been linked up more and more closely with moral valuations, so that in the higher religions it is impossible to think away moral predicates from the conception of the Divine. Yet there remain non-rational in addition to these rational moral predicates, characteristics of the Divine which we can merely indicate in words—non-rational types of feeling such as the feeling of dependence, of otherness, of the mysterious, the tremendous, etc., already referred to. These have their lower as well as their higher fo ms. In lower forms they appear in various species of superstition, fear of ghosts, the feeling of uncanniness, the otherness of the miraculous or the supernatural. These feelings gradually alter under the influence of increased knowledge, but do not disappear entirely. They are purified and pass from a lower to a higher form, and so in spite of all the progress of

scientific thought there remains this particular mental attitude which has been called by Professor Otto the "numinous" (from the Latin word *numen*, divinity), and he claims, and I think rightly, that in this attitude we have a definite form of experience and a definite way of experiencing reality; not just a feeling that may vary from one person to another, that may come and go and perhaps disappear entirely with further mental development, but a way of experiencing reality on the same level with the cognitive attitude, of knowing reality, and the other attitudes which I have enumerated. The task of Psychology is partly to do full justice to this mental attitude by analysing it in as detailed a way as possible, partly to link it up with other forms of experience not generally recognised as religious.

A great deal of work has been done by the method of the questionnaire, in which the investigator sends out a series of questions about their religious feelings to a large number of people. One of the first to adopt this course was Professor Starbuck in America, and in the first great book on the psychology of religion, by Professor William James, Professor Starbuck's results were largely used. James here marshals the evidence, and sums up the characteristics of the religious life (independently of the discrepancies of creed) as including the following beliefs:—"1. That the visible world is part of a more spiritual universe from which it draws its chief significance; 2. That unison or harmonious relation with that higher universe is our true end; 3. That prayer or inner communion with the spirit thereof—be that spirit 'God' or 'law'—is a process wherein work is really done, and spiritual energy flows in and produces effects, psychological or material, within the phenomenal world."[1]

It also becomes clear from the evidence that the phenomenon of conversion is a fundamental process in the religious life. Conversion may be defined as a change of general mental attitude from the merely naturalistic attitude towards life to a definitely spiritual attitude. The individual finds the world so full of strange and wonderful things that his mind is at first mainly occupied with getting to understand and appreciate it in a profane way, but he discovers that this is not sufficient to give him true happiness. In spite of his most earnest endeavours to adjust himself to his physical and social environment and to be true to an ethical ideal, a feeling of insufficiency weighs upon his mind, and produces depression from which he struggles to free himself. Peace may come in one way or another, and the process of passing

[1] "Varieties of Religious Experiences," p. 485.

from such a state of conflict and strain to a state of harmony and peace is the process of conversion. Among certain religious sects conversion is striven after along definite lines. The sense of insufficiency and sin is emphasised in the prospective convert. He is encouraged to struggle hard against his difficulties, to face them, and to realise them as fully as possible. He passes through a state of intense mental anguish, and then suddenly reaches a state of calm and peace. But in another class of individuals, who take religious life just as seriously, such sudden conversion may not occur. Yet I do not think that we can say that conversion as such is absent, and I am inclined to believe that conversion in its general sense of turning from the merely naturalistic attitude towards life to a more spiritual attitude occurs in every case, but in many cases it may occur slowly and gradually, as a process of healthy growth. Cases of sudden conversion are often to some extent pathological. I do not mean that the conversion itself is pathological, but that the conditions and consequences may be in part pathological. The strain and stress of mental conflict may produce temporary disturbance of functioning of the nervous system, and in that way give rise to experiences that are not in every respect normal religious experiences ;—depression, hallucinations, and even temporary delusions that show very close resemblance to the depression, hallucinations and delusions met with in mental patients quite independently of their religious life.

The feeling of peace and relief on the psychological side may be partly explained as a transition from a state of division of the self, where one part of the self is fighting against another, to a state of unification and harmony. In this transition from division to unification a certain amount of energy is liberated which as a surplus allows all mental processes to occur more readily and freely, producing a feeling of happiness. This is an extremely crude theory, in terms of physiology and psychology, and certainly cannot be accepted as a fully adequate account of the process. The truth is that, so long as we speak merely as psychologists we are tending to leave out the truly religious attitude altogether. Again I can only illustrate by the analogy of knowledge. So far as we treat knowledge psychologically, we describe what goes on in the individual mind as a sequence of individual processes which if taken by itself, would actually explain away knowledge. It would leave us without that conviction of the *validity* of our knowledge which is such an essential part of it. And so it is with religious experience. Psychologically in the very effort that we make to describe religious experience as a sequence of mental processes in the individual's mind, we are invalidating that

experience. We might say that we are making an experiment, we are seeing how far we can explain the religious experience of the individual in terms of that individual's own antecedent experience without reference to anything beyond, that we are for the time being putting aside transcendence, because directly we assume that the individual is in touch with an existence outside him, we are passing beyond psychology. All that psychology does is to describe as accurately and fully as possible what goes on in his mind.

Moreover psychology, like other sciences, is committed to the principle of parsimony, the principle of "Occam's razor," to use as few hypotheses as possible, and to explain experience as fully as possible in terms of the most general hypotheses, and this brings me to the use made of the doctrine of the sub-conscious or subliminal self, and in more recent years to the doctrine of the unconscious, to explain or explain away religious experience. Following up the hints of resemblance of certain startling religious experiences to certain pathological experiences, the attempt was made by James to fill up the gap, or to soften down the suddenness of the transition in the individual mind from the state of depression and sinfulness to a state of redemption, by an appeal to processes assumed to go on below the threshold of consciousness, in the subliminal. In the case of sudden conversion, for example, the theory was that the individual's consciousness seemed to remain on a merely naturalistic plane of existence, with a naturalistic outlook on life ; in the depths of his mind, however, a change was going on, other considerations were being weighed, other motives were getting their way, a subsidiary self was being developed, a set of mental tendencies which gained in strength and at last broke through into consciousness, and just before breaking through produced a feeling of intense strain and depression. When however, it had broken through, it was able to combine with what it found there, modifying it, transforming it entirely so that the individual felt a new man, as if he were born again. James himself goes further and suggests that it may well be that the individual conscious mind comes into relation with the Deity through the intermediation of the subconscious mind. The changes in the conscious mind in the direction of a more satisfactory religious attitude may be produced through the intermediation of the subconscious, and in this way prayer may receive its answer. Influences may reach us through the dreamy subliminal which in the hubbub of waking life might pass us by.

From the scientific point of view, one would criticise such a theory as this, because it is not thorough-going enough. If you

bring in the conception of the subliminal, and use it as an hypothesis, it is your duty as scientists to press that hypothesis to the utmost. Although James did not do this, it has been done by later writers, and in modern times we find a number of enthusiastic psychologists who look to the unconscious for an explanation of all these phenomena, but who, one cannot help feeling, have at the back of their minds the idea that they can only truly rely upon religious experience if it proves recalcitrant to this method. On the one hand they will reject the supernatural, in the sense of the belief in a spiritual universe as distinct from the ordinary universe in space and time, because all the possibilities of explanation in terms of what goes on in the individual mind have not been exhausted, and yet on the other hand they are quite certain that these possibilities of explanation will never be exhausted. To all intents and purposes they are sceptics with regard to the validity of religious experience. The present situation of the psychology of religion is very similar to the situation as regards knowledge at the time when Locke, Berkeley and Hume were writing. They were endeavouring to get to know what knowledge meant, their aim was to understand knowledge, to know about human understanding, but they used a predominantly psychological method, and although that psychological method increased their knowledge of psychology, it only made the central problem of knowledge more apparent, and it remained for Kant to show how completely they had failed to do justice to the science of knowledge. In the same way, at the present day and during the last twenty years, psychologists have approached the question of the validity of religious experience on psychological lines, not always realising that by the very method they have adopted, they are challenging or denying that validity. In other words, just as psychology as such cannot do justice to the validity of knowledge, psychology cannot do justice to the validity of religion. Of course it is open to every one to pass beyond the psychological to the philosophical line of explanation, and it is just as essential to do that in the problem of religion as it is in the problems of ethics, aesthetics, and epistemology.

Having emphasised this side of the question, we can with a clearer conscience proceed to apply psychological methods and observations to religious experience, although at every step in our argument we shall find it necessary to supplement psychology with philosophy. I am thinking at the moment of the attempts made by certain members of the psycho-analytic school to explain away the main facts of the Christian religion in terms of concepts borrowed from pathological psychology. One continental writer who does not himself belong to the Christian faith explains the

central or main tenets, of the Christian doctrine in terms of "projection" and "regression." He contends that the Christian attitude towards life is an infantile attitude that arises as a result of the individual's complete failure to grapple with the mystery of existence. The individual tries to face the facts of reality, fails, and regresses towards more infantile modes of adaptation. Not being able to see adequate security among the forces of nature around him, he steps back to the mental attitude he had when a young child, of implicit faith in the power and goodness of his parents, in the modified form of a belief in a beneficent Deity. His belief in the Divine is simply this infantile feeling, which may surge up even in spite of himself. Again, his intense desire to conserve or preserve his values, logical, ethical and aesthetical, all those things that make life for him worth living, may be so strong that it produces a sort of hallucinatory fulfillment. It produces a feeling in him that it is fulfilled, that everything is all right, that we are safe in God's hands. Just to illustrate the kind of explanation proffered nowadays, we may mention that another psycho-analyst undertakes to explain the feeling of original sin in terms of the Oedipus complex. The individual has a bad conscience, because in his childhood he felt a strong affection for one of his parents and hatred and jealousy towards the other, which he repressed and, as a result of repression, there arose feelings of sympathy and bad conscience. These were projected outwards and formed the basis of the systematic doctrines of the Fatherhood of God, the Atonement, etc.[1]

We can meet these arguments in two ways, one theoretical and the other practical. Theoretically we can say that they are guilty of what Aristotle called a μετάβασις εἰς ἄλλο γένος,—the fallacy of explaining the facts of one science in terms of the concepts of another—in explaining the normal mind in terms of the abnormal, without first giving an adequate theory of the distinction between normal and abnormal. It is true that increase in knowledge of abnormal psychology should, and does, throw further light upon the laws of working of the normal mind, and thus makes its own contribution to the definition of the normal. But this does not detract from the priority of the normal to the abnormal in general theory. An analogous situation exists in the neighbouring science of physiology. No one would explain physiological change in terms of pathology. Physiology benefits

[1]Although psychological factors of this kind, among others, may contribute their share to crude religious emotion, to use them to explain away the essential characteristics of religious experiences would be to "pour away the baby with the bath-water."

by knowledge gained from pathology. Pathology also clearly gains enormously from the knowledge of physiology. But the two sciences are quite distinct. Clearly pathology is in the main subsidiary to physiology. The second line of attack is the more satisfactory one of actual experience. According to one's experience of the pathological processes of projection and regression and the influence of the Oedipus complex in a patient, these are generally diminished or eliminated by a course of psycho-analysis. If therefore the typical religious attitude towards life is explainable in these terms, the religious consciousness would be altered by analysis in the direction of elimination. One would expect, according to this theory, that deep analysis would leave the patient less religious than he was before. My own experience has been the exact opposite of this. After an analysis by a leading psycho-analyst extending over ninety-two hours, my religious convictions were stronger than before, not weaker. The analysis had indeed a purifying effect upon my religious feelings, freeing them from much that was merely infantile and supported by sentimental associations or historical accidents. But the ultimate result has been that I have become more convinced than ever that religion is the most important thing in life, and that it is essential to mental health. The need of forms and ceremonies is another matter, far less fundamental. In many patients whom I have myself analysed I have found a similar result. Although mere emotionalism and religiosity is diminished, the essentially religious outlook on life remains unimpaired.[1]

[1] A continuation of this discussion appears in the April number of the *Hibbert Journal*.

THE RELATIONSHIPS OF THE NEUROSES

By E. MILLER, M.A. (Cantab.), D.P.M. (Cantab.).

A time arrives in the development of any department of knowledge when it passes from the descriptive phase to a phase of classification, and even in its passage forward to the consideration of the processes underlying its phenomena, for practical purposes and for the purpose of making general propositions about the data accumulated, constant reference has to be made to the classes into which these data have fallen. But whereas at the purely classification stage the phenomena are made to fall into more or less rigid groups which bear definite logical marks, so that genus is separated from genus and species are subsumed under them, at the level at which processes are discovered the groups cease to have logic tight boundaries and are now related to one another in the causal sense. The causal relationship between groups is then the logical outcome of the discovery of processes. Classification aims at the complete and systematic survey of phenomena, but such a survey may be pursued from two points of view.

For practical purposes any grouping which the needs of the immediate situation may demand will be sufficient. For administrative purposes one system will be admissible, for clinical purposes another will suffice, but where the purpose in view is an attempt scientifically to co-ordinate the phenomena dealt with a natural classification becomes necessary. By a natural classification is meant such an ordering of data as will embrace a wide universe of discourse. It will refer to such general considerations as grow out of the natural laws which are found on broad lines to bind together the phenomena into a consistent whole. Such a natural classification will grow comparatively easily from the biological sciences. In this realm we have a number of facts that are genetically related to one another, and if a certain genetic relationship can be found to cover a very wide field of enquiry, the groups into which the phenomena fall will be naturally related to one another. Such a natural classification—or system of relationships—will be of value in so far as no sooner are certain facts or phenomena discovered to fall into a certain group, then we will be able to predict

by reference to our genetic scheme the probable destiny of such phenomena when subject to changed conditions, and thus some new unexpected relationship may emerge.

As soon as Biologists became inspired with the Theory of Evolution the nature and function of classification underwent a change.

It is true very little actual change took place in classification as such, but there was an enormous increase in the historic interest in species—a third dimension seemed to be introduced into classification, as soon as interest was taken in the relation between extinct and living species, and in living species between themselves. We need another line to express the relationship. The ideal classification, therefore, is one which relates objects of scientific enquiry by means of a Genealogy.

Let us apply these considerations to the subject of Psychological Medicine. We are dealing, as we deal in the rest of medicine, with processes rather than with entities. From the clinical standpoint alone entities may be assumed to exist for all practical purposes, but even now conscious of the ragged edges of all concepts we prefer to call many such entities syndromes—assuming, as it were, that certain reactions tend to turn together around an orbit depending upon the forces of Nature exerted under certain conditions.

But where practical needs are made subservient to scientific truth some sort of natural classification becomes necessary. Every condition is merely a temporary equilibrium of certain psychological forces, and in the same way as the theory of evolution called for a more dynamic conception of the ordering of the species, so the development of psychological states from antecedent states calls for some dynamic conception. But what we wish to urge here is no mere analogy between the world of Biology and the realm of Psychology. Fundamentally the same laws hold good for both departments of knowledge; that Psychology taking its place amongst the biological sciences, and must be shown to possess the same laws of development and to exhibit the same processes. Spencer defines Life as the adjustment of internal relations to external relations. Such a statement is true enough, but because of its tremendous breadth it is correspondingly shallow. Every organism has to adjust its internal relations one to another before its whole reaction to external relations becomes adequate for survival.

As far as the psychical life of the organism is concerned the state of affairs becomes even more complex. Here we have a system which has a series of native endowments for certain ends—

the adjustment to reality. These native endowments are utilised to subserve various interests of the organism which may not agree mutually. By a series of internal adjustments the parallelogram of forces is so constituted that a resultant or vector is produced which enables the organism to face reality harmoniously. But this is so only in the hypothetically normal case. In the narrow Biological world there is the great struggle of Phylogeny *versus* Ontogeny—the process of race formation working through individuals of a species, and the process of individuation working within the species. In the psychological realm at the level of man with the emergence of the awareness of Self the conflict of Phylogeny and Ontogeny becomes proportionately more acute.

The extent to which phylogeny and ontogeny are of causal significance in psychology will concern us in the sequel when we justify our twofold division of the neuroses.

We saw that the introduction of a genetic element into biology gave to classification an added dimension—the historic. How will this influence any scheme of relationship that we choose to draw up? The demand will only be satisfied if we include description of phenomenon as they appear to us at any given moment of observation, and if we include or suggest the retiological and fundamental causal factors which determine the appearance of these phenomena.

In other words, not only ought we to aim at marking off the Neuroses according to the clinical connotation or attributes of a syndrome, but we ought to indicate by our nomenclature, or better by a genealogical system of relationships the causal factors underlying the syndrome, so that if a common process underlies a number of syndromes, those syndromes, too, must be related to one another. How these will be related will be shown further on. Occasionally in Medicine, by a happy inspiration, conditions have been very well named. For example, in the term Encephalitis Lethargica we have combined together a clinical word—the Lethargic state and a pathological cause, the Encephalitis—a species under the genus—inflammation.

As long as the origin of mental disorders and their development remained unknown, owing to an imperfect appreciation of the biological problems involved, and of the psychological structure of these disorders, it remained impossible to classify such disorders under any other existence than the symptomatic one, embellished slightly by reference to incidental causes arising suddenly in the life of the individual. One will be pardoned for referring to alcohol, sepsis toxaemias of various kinds as incidental. One uses the word in its etymological sense to signify merely incidents in a

whole life history occurring at one knows not what period in that life, and therefore coming and going more or less independantly of the psychological growth of the person in question.

Fortunately, however, in more or less recent years the growing conviction that mental illnesses were due to a disturbance of the emotional life rather than due to primary intellectual dysfunctioning, that the mentally sick were maladjusted and not necessarily malformed subjects has enabled workers in this field to co-ordinate their data with the findings of the general biological sciences, pursuing the same methods. In the same way as species have arisen by a process of adaptation, so also, inversely however, have mental illnesses arisen by a process of maladaptation. This last remark must, of course, be qualified ; firstly, because it would appear superficially that the process of maladaptation is just the same as is found in maladapted organism in the general biological sphere. This is not truly so. The maladapted mentally ill person is one whose internal compensations have broken down, and a new form of adaptation is achieved which, at a certain threshold, becomes worthy of being classed as pathological or diseased—for example, some regressions are perfectly normal and desirable—such a flight from present reality may have no pathological significance at all.

So far we have dealt with the general principles underlying a genealogical scheme.

In the first place it is my duty in the interest of clarity of thought to define Neurosis. We cannot for a moment dissociate Neuroses from Psychoses. We will define a Neurosis as a disturbance of the harmonious relationship existing between psychological and neurological processes—by neurological we include all those autonomic factors which bring the nervous system into rapport with the organism as a whole. This may seem an absurdly broad definition. That is certainly true, but so long as we are dealing with a wide universe of discourse, we are obliged to make our definition all inclusive. By placing the psychological over against the neurological we can load the dice according to the centre of gravity of the disturbance. On the psychological side, when mental disorientation is most striking neurological events will play a small part, in the mean position, where there is a balance of psychological and the neurological disturbances we will get the conditions known as psycho-neuroses. We should be happier to call all the disturbances which fall under the names of Neurosis and Psychoses, Minor and Major Psychoses, but we feel that the dilemma of nomenclature will perhaps be resolved in the genealogy which we will pass on to consider now.

Beginning with the organism genealogically we have a subject with certain native endowments—that is, instinct-neurograms, if the behaviourist nomenclature is more acceptable to you, a subject, moreover, who at the outset is dominated by hedonistic interests—or the pleasure principle according to Freud. It starts in the blooming buzzing confusion with psychologically only partially differentiated senses—from which coenaesthesia particulars are selected by hedonic interest and a certain modicum of the demands of reality. With the rise of conflict in the infantile mind, the inhibition of hedonic demands by the demands of other interests, character formation begins. Phylogenetic forces are wrapped up predominantly in the sexual activities, whereas the forces of self-consciousness and self-interest are predominately forces of an ontogenetic character—they subserve individual development at the cost of racial development. There are groups of instinctive activities that seem to serve these two interests in apparently diverse ways. They are set so intent on the preservation of the race that the germplasm which carries the anlage of the race is almost impermeable to outside influence, almost untouched by the varied experiences engendered by individuation.

" There is a group of instincts," says Freud, " that care for the destiny of the elementary organism which survive the individual being that concern themselves with the safe sheltering of these organisms as long as they are defenceless against the stimili of the external world, and finally bring about their conjunction with other reproductive cells. These are the collective sexual instincts . . . they are the actual life instincts . . . there is, as it were, an oscillating rhythm in the life of organisms: they are groups of instincts pressed forward to reach the final goal of life as quickly as possible, the other flies back at a certain point on the way only to traverse the same stretch once more from a given spot, and then to prolong the duration of the journey. Although sexuality and the distinction of sex did not exist at the dawn of life, nevertheless it remains possible that the instincts which are later described as sexual were active from the very beginning, and took up the part of opposition to the *role* of the ego-instincts then and not only at some later time."

Ego-instincts are anticipated in their action in that they strive to perfect individuation—they tend according to our view to produce an introverted type of reaction.

Accepting Attention as the mark of consciousness, we accept the definition of introversion as a more or less prolonged condition in which attention is controlled more by the subjective than by the objective conditions, and in which the content of the subjective

conditions is of a more or less abstract nature, and not so intimately related to the objective condition. With the sex instincts the activity is mainly centrifugal—a casting outwards for union with another cell with the sole object of maintaining the life of the species. Their dominance tends to produce an extroverted type of reaction—extroversion being a more or less prolonged condition in which attention is controlled by the objective conditions of attention more than by the subjective, and in which the subjective condition is most closely related to the objective.

In the one type emotional activity will be dissipated, as it were, in doing external work; in the other it will be held within the system. We will refer to the implication of this later. The psychological arguments for this bifurcation are, I presume, familiar to every one. The more or less normally equilibrated person reacts in both ways according to circumstances, and may be regarded in Conklin's term as ambiverted, but where abnormal functioning has resulted from an accentuation early in life of the sexual instincts or the ego instincts, the reaction to life becomes more strikingly extroverted or introverted. (The whole history of philosophy has been dominated by this thesis and antithesis Being and Non being. Sein and Dasein.)

The introvert is more secretive, self-sufficient and contemplative. He is usually less affectionate in the sense that he finds it difficult to form attachments with ease. His ego-instincts seem to revolt against the possibility of surrendering to the sex instincts within him which would drive him for its own purposes to find union with another the only true satisfactory solution of the problem of adjustment. In such a type the struggle between the intrinsic ego and the ego-ideal which has developed from his oedipus situation, will make all forms of sexual choice proportionately more difficult. He seems to be less prone to desire satisfaction in regression. The implication of this in the development of our genealogy will follow later.

The extrovert is polar opposite. Satisfaction is derived by external activities. Affectionate libidinal ties are much more easily established.

The Physiological arguments are much less positive and remain within the field of speculation. But they bear certain objective signs which may help us to substantiate the dichotomy we have suggested.

There is a tendency for two types of reaction to the galvanometer to result when feeble-minded and hysterics and anxiety cases are investigated by the Psycho-galvanometer. Whereas the hysteric may show a great deal of emotion when the familiar stimuli and

warnings are given the reactions are comparatively small. Anxiety cases, and persons in a condition of depression, or given to obsessions, are apt to give larger deflections on the psycho-galvanometer. To our mind the hysterics and the anxiety cases fall within the two groups of Negative Reaction and Positive Reaction—extroversion types and introversion types. They have opposed emotivity, and the temperamental make is *ab-initio* different. The hysteric diverges from the anxiety case very early in mental development. What ultimately determines the predominance of the ego-impulses in one type and the sex impulses in the other it is impossible to say; the question cannot be solved by the evidence at our disposal.

A further physiological field to be explored in support of our main subdivision is the field of endocrinology. Here, again, the evidence is still very fluid in that the condition marked off run into one another and associated with so many permutations and combinations of endocrine elements that it seems difficult to make any scientific use of the evidence up to date. But still let us be daring, let us explore the field none the less in order to discover whether some support can be given to the thesis we have presented. It would not be unduly rash to suggest that the work of Creile and Cannon does support the view that in the anxiety states there is an over activity of the suprarenals and the Thyroid. In the feeble-minded and the hysteric we venture to suggest that deficiency in these secretions could probably be demonstrated. The work on Dementia Precox of Mott and others has shown that there is frequently associated with these conditions a poorly developed thyroid, suprarenal and gonad systems. There are other signs of feeble development in the hypoplasia of the vascular system. They seem to fit in with what Nolan Lewis calls a status lymphatic type. In the psychological make-up of the Hysteric and the Precox patients there are many points in common which almost impels us to group these two conditions under one larger class. The emotional apathy of the Precox and the belle indifference of the hysteric are very familiar features. In the words of Jung :—"The lack of self-control, and the inability to control affects, is characteristic of D.P. We find the defect wherever there is a morbidly enhanced emotivity, especially in hysteria and epilepsy. The symptom only shows that there is a marked disturbance of ego-synthesis." But we feel that fundamentally there is a real distinction between Hysteria and Dementia Precox which Jung's comparison does not bring out. It is found clinically that the Hysteric if he is made to throw off his symptoms of conversion lapses back into a state of diffuse hysteria, or false feelings of elation, and therefore belongs rightly to the negative reactionary group

noted by the psycho-galvanometer, and he therefore should rightfully be found on the Right branch of the genealogical tree. Further, the ego-synthesis disturbance is of a different order—it is the polar opposite of the Dementia Precox. Whereas the Hysteric shows an indifference which is centrifugal in the appearance of conversion symptoms, the Dementia Precox is indifferent by an internal disruption which does not appear externally.

Dr. Stoddart has noted the extent to which exophthalmic goitre and Anxiety States are associated in Asylum practice. May it not therefore be possible along these lines to establish more or less definite endocrine patterns to exist in the extreme types with variations of intensity as we approach the intermediate types?

The discussion in support of these two divisions started with psychological arguments, and through psychological and physiological passes on to the lowest grade of all—the anthropological. Where the pursuit of truth is our only immediate concern there is no reason to waver before the difficulty of the task, and although no finality is expected, nor can be hoped for, from these arguments, or rather as I should more accurately call them suggestions, there is no reason why we should not make use of other fields of enquiry to seek out support for our theory. Some time ago it occurred to a member of the Anthropological Society that there may be some relationship between primitive human types and psychological reaction types. He could not take ordinary people and say here we have extrovert—here introvert, let us measure their heads—their ankle profiles, their hands, and draw up a correlation. Correlation can only be established between two or more well defined entities. He therefore suggested that if the extreme types of reaction—*e.g.*, hysteric and anxiety states—were investigated, perhaps some relationship might be established. With that starting point we took careful measurement of 150 heads roughly equal numbers of established hysterics and chronic anxiety cases, and examined their hands also to see if this fell in any orderly fashion into the Chimpanzoid or Orangoid classes. But we established no relationship whatsoever as regards the figures and only vague suggestions emerged from the hands. The number of cases of hysterics with chimpanzoid hands seemed to be in excess of those found amongst the anxiety states. There have been a number o workers in this field of anthropology who have tried on the basis of a supposed plurigenic origin of man from a number of pre-human anthropoids to deduce from measurements and characteristics of gait and attitude the way in which these types have influenced human development psychologically. They have noted resemblances between the Mongoloid imbecile and a primitive Austral Caucasian

strain, and that in Dementia Precox we have a retrogression to chimpanzoid forms through Neanderthal man. (Work of Klaatsch).

Some striking features in the hands of the demented, the mongol face of certain imbeciles, the fissured monkey tongue of some feeble-minded types might give us pause, but with the very conflicting evidence at our disposal, the paucity of post-mortem examination of skull forms of imbeciles and dements would make any attempted classification on such a basis extremely rash. However that may be, the occasional appearance of striking similarities between primitive types and certain degenerate types to-day may in the future, with further facts, lead to the establishment of some relationship on which classes can be based.

But although in the minor psychoses our measurements yielded very doubtful statistical evidence, the more psychotic types seemed to show general facial distinctions of a two-fold character—that is, while the manic-depressives tended to have round jovial faces and stumpy figures, the dementia precox faces appeared more angular and the bodies of a slender and delicate line.[1]

The main interest of psychological medicine lies in the immediate contact with patients, and therefore no relationship will be of any value unless it deals with material which he has at hand. We must therefore turn to the more immediate material and discuss how their various manifestations can be related to one another.

In all conditions arising from the process of pathological introversion there appears to us to be always an initial stage of anxiety. For the purposes of classification, particularly classification over a wide range, it is always necessary and logically sound to introduce intermediate or initial entities or states which have no existence in fact, or at least only a fleeting existence, but which helps us to group phenomena bearing a common generic mark. For this reason on the Left arm of our genealogy we speak of a general state *diffuse anxiety*, from which the well rounded syndrome of Freud, Anxiety Neurosis has not yet become marked off, and from which the variety of offspring has not yet arisen by marriage, as it were, between certain of the symptoms of anxiety states and the specific fears or fixed ideas or phantasies with which they become at first loosely syncretised and later actually organised. Anxiety States pass on by added organisation into Phobias and Obsessions. But there will be phobias and obsessions with a more or less definite mark of anxious expectation. There are other phobic and

[1] Kretchmer's recent book gives considerable corroborative evidence of this over a wide field.

obsessional states which owe their origin to a true lying anterior to any anxiety state having arisen ; but to our mind there is always an atmosphere of anxiety about these types too, particularly where the phobia is unexpectedly evoked, or where the obsession is unexpectedly inhabited. We therefore place these states, too, on the branch of Diffuse Anxiety, separating them, however, from Anxiety Neurosis proper and its specific developments—phobia-compulsions and obsessive states. Thus regarding these states from one angle they are clinically independent but psychologically related to one another by an order of sequence and causal relationship. The length of time which elapses before a given anxiety state crystallises out into a specific phobia or obsession depends upon the rapidity with which conditioned reflexes can be established. These may be already prepared for as in the existence within the mind of affect laden memories organised as sentiments and complexes, inhibited or otherwise according as they conflict or air the major driving forces of the personality. One has in mind, for example, the anxiety states following attacks of Malaria from the cerebral disturbance of which certain phantasies, usually of infantile origin, arise and become the occasion for the passage of the anxiety state into a phobia—an obsession or a delusion.

Each case, however, will have its specific etiological moment. The latest etiological moment may be in most cases of anxiety and neurasthenia incomplete adjustment between afferent states of excitement, and efferent excitation, but in all cases some pre-established personal obliquity will be the remote etiological factor. Whatever be the particular form of the disfunction, the underlying mechanism is one of a narcissism which has attempted extroversion and has failed at the recent conflict.

All these conditions are capable of passing one in to the other the passage from one to another being partly due to the appearance of other etiological factors. The basic difference is one of psychological tension rather than difference of mechanism, as would be suggested by the term mixed neurosis. The bringing into action of other etiological factors merely serves to give another impulse to the swing of the affective pendulum, the past history of the individual determining at what particular phase and with what particular expression the disorder will show itself.

On the side of Hysteria we have schematically proposed the same subdivisions—or rather relationships. Here the protean forms in which this reaction type may manifest itself may be assumed to arise from a hypothetical diffuse hysterical state—the state of vague seeking for a defense mechanism. Here, too, the psychological tension varies from pole to pole. From minor somatic

dissociations such as anaesthesias and monoplegias on to astasia abasia, and finally to convulsive attacks, until we reach the almost classical type of epileptic seizure.

According to the etiological factors involved and the conditioned reflexes formed either in recent conflict or remote, so will the hysterical manifestation show itself. Each of these conversions or fixations are defense mechanism for procuring some sort of modus vivendi. In all hystericals there is a lower grade of psychological tension—the ego is not so well synthesised, with a consequence that the molecular and molar dissociation takes place with greater ease in the service of defence.

Here Freud, at least as he expresses his conception of ego-instincts in the Beyond the Pleasure Principle—may help us. If we understand Freud aright, the activity of the ego is associated with death instincts as opposed to the life urging forces of the sex instinct. Perhaps in hysterical dissociations we are viewing a partial death due to the withdrawal of the ego from its body as object of love. For this reason we might be inclined to place Dementia Precox on this side of the genealogy, seeing that it has so many points in common with Hysteria—they both approximate to the closed in type, and, lastly, that the attitude of mind in both cases shows lack of synthesis of the ego components—the essential differences being that in the hysteric the complex is rather fluctuating, whereas in Dementia Precox it is so stable as to be almost, if not actually, indestructible. Furthermore, in cases where a secondary dementia has developed on top of a long standing hysteria, the picture is sometimes so much like true D.P. as to be almost indistinguishable.

Paranoia should most emphatically be placed on the Introvert side of disorders—a Defense Psychosis in which there is an outstanding ego striving thwarted by some early sexual struggle for extroversion which has failed.

The Depressive Psychoses, and Manic Depressive oscillations, illustrate an attempt at synthesis between libidinal tendencies and Ego ideal—the dominant urge being towards the satisfaction of libidinal ties in conformity with an ideal that has been formed of the self. The centre of gravity, however, lies on the extrovert side, and therefore these states belong to the Right side of the genealogy. Freud describes these cycles of mood as follows:—

"It is well known that there are people, the general colour of whose mood oscillates from an excessive depression through some kind of intermediate state to an exalted state of well-being. These oscillations appear in very different degrees of amplitude, from what is just noticeable to those extreme instances which in the

shape of melancholia and mania make the first painful or disturbing inroads upon the life of the person concerned. The foundation of these spontaneous oscillations and changes of mood is unknown—we are without insight into the mechanism of the displacement of a melancholia by a mania. So we are free to suppose that . . . their ego ideal might be temporarily resolved into their ego after having previously ruled it with especial strictness.

As regards the non-cyclical melancholia, Freud says further :—"There are some melancholias in which the exciting cause clearly plays an aetiological part . . . *e.g.*, after the loss of a loved object in circumstances which have necessitated the withdrawal of libido from the object."

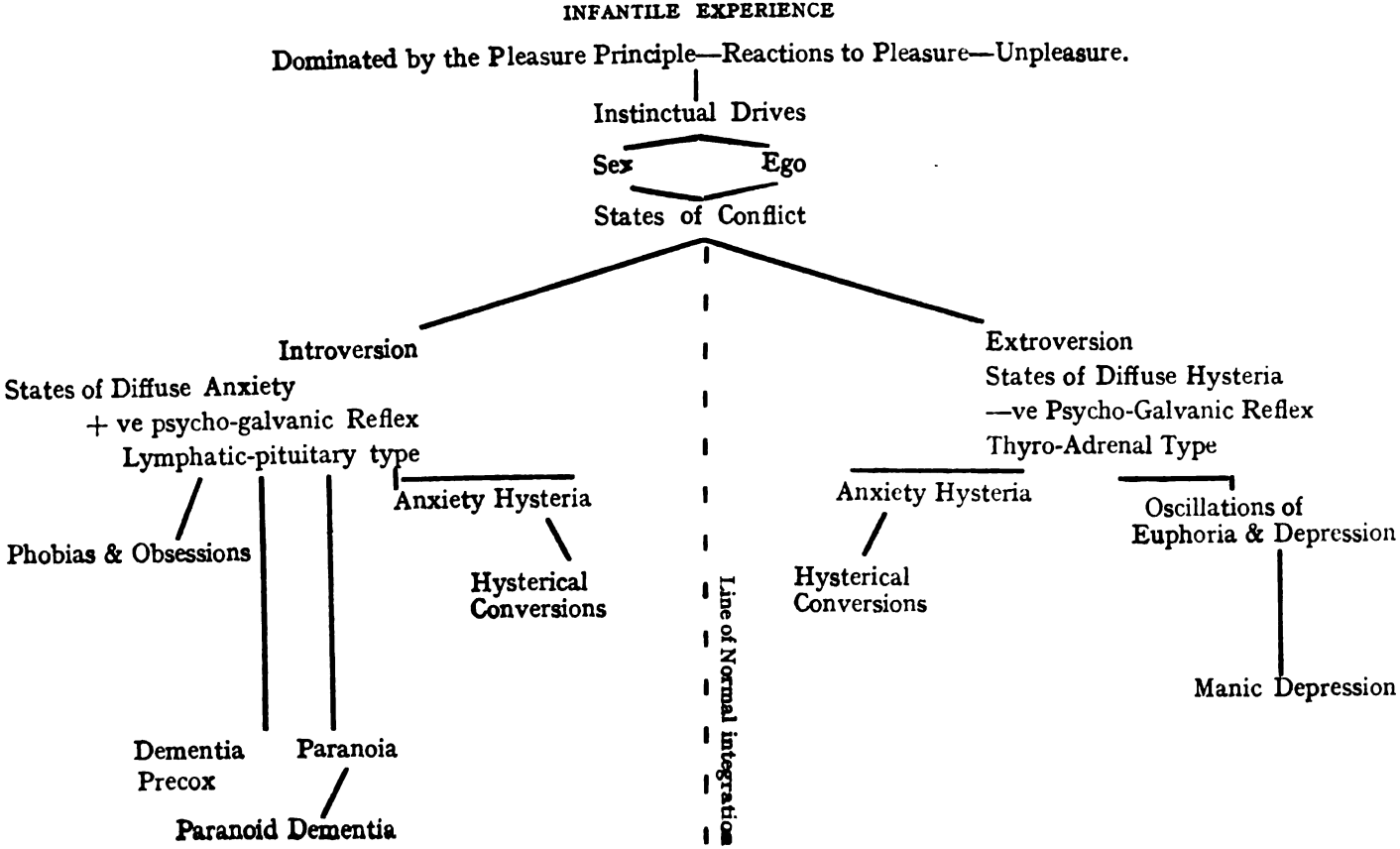
Our attempt at drawing up a genealogical relationship of the mental disorders from minor to major can be seen to be greatly influenced by the recent work of Freud on Ego psychology. Without this bifurcation into the two reaction types it appears difficult to see how the fundamental major conflict of sex *versus* ego could be broadly understood.

The two great processes in Nature—phylogeny and autogeny—are thus found to play their part in the psychological realm, and it is in the light of this dichotomy that this scheme of relationship has been drawn up.

These latest developments, too, appear to give a new orientation to psychology ; but on the other hand the growing appreciation of the importance of the process of individuation found by psycho-analysis, and by the study of lower organisms, may serve one additional and useful purpose, it may help to establish a common ground for psycho-analysis and the so-called academic psychology. Academic psychology has been particularly interested in individual development from the formal point of view—the problem of self-consciousness has been its particular regard, and the way self-conscious subjects build up their world of concepts. By a fuller appreciation of affective and instinctive influences we learn how the attempts to face reality are constantly being thwarted by the internal strife of ego *v.* sexuality.

This conflict has been made a basis of the system of relationship we have attempted to suggest. In showing how disorders arise by the struggle of the two apparently opposing forces by a process of differentiation, it also indicates implicitly how orderly mental development arises by a process of integration.

A SUGGESTED GENEALOGY OF THE RELATIONSHIPS OF THE NEUROSES.



THE DEMATERIALIZATION OF MATTER AND IMAGINATION

By F. C. CONSTABLE.

Tot homines, tot sententiae. We may accept or reject Haeckel's theory that our universe exists in a closed circle of moments of evolution and devolution, we may hold that man is a particular creation of God or has evolved from some primordial form, we may follow the ironic pessimism of Anatole France and regard man as a loveable, if laughable, being of passing time, or agree with the mystic or transcendentalist that, through pain and anguish, humanity is labouring towards a glorious future.

But, I think, we are faced by one indubitable fact,—a fact for the idealist, the rationalist, the materialist. We are faced by the fact of a progressive process in man's knowledge of himself and of the universe in which he exists. No progressive process is to be found in man's powers of sense,—in his muscular sense, in his powers of sight, hearing and smell. Indeed, it is doubtful whether the Neanderthal man, for example, had not stronger muscular sense and powers of sight, hearing and smell than the average man of the present age. The progressive process is only to be found in the evolution of man's power of thought and of the use of thought. I think the fact of the evolution is indubitable.

The tendency of this advance in knowledge is towards full truth and, I think, no dogmatic limit can be placed on this tendency. Imagination, which is at the back of thought, extends into the future and there is power in man to imagine and, in some degree, to determine a more favourable future for his race, power to better the environment of the coming race for right thought and conduct.

But we can go further : we can determine in some measure the *form of* this progressive process in human knowledge. Man begins to learn by reliance on the evidence of his senses. . . . He has the muscular sense, the senses of sight, hearing and smell. To man, so constituted, what are called sensa are presented and, at first, fully relying on them, he uses them as content for thought. He trusts to what he sees, hears, smells and feels : he begins by assuming he is so faced by reality.

But, as thought evolves, he begins to correct, even contradict, the evidence of his senses and, as constituted, he places greater reliance on what he thinks about sensa, than on the sensa themselves.[1] There is no progressive process apparent in any evolution of man's powers of sense. The muscular sense, powers of sight, hearing and smelling of the Neanderthal man, were, as before said, probably at least as powerful as those of man of the present day. Man, relying solely on the evidence of his senses, could have made no advance in knowledge of himself and his universe. Any progressive process in such matters was open to him only in evolution of thought and its use, less and less reliance being placed on the evidence of his senses. This evolution is a fact of human experience.

It may be objected that the microphone, or spinthariscope, for example, have increased man's sense of hearing or seeing. But this is not so. Man's senses remain as they were : it is simply that, by the use of thought, man has invented certain things by the means of which the same, unchanged senses can be used more effectively.

An instance of what is now meant may well be given.

We sense the sun going round the earth in exactly the same way that mankind has always sensed it and, till three or four hundred years ago, men, quite naturally, assumed that their senses gave them information of what was really happening. Then Galileo, after Copernicus, told us that the senses deceive us, that is, that the sun does not go round the earth but the earth round the sun. He corrected, even contradicted, the evidence of the senses by the use of thought.[2] In common with all men who give to the world new truths Galileo was vilified by science and religion. Some, even now, cannot accept it as a fact that their senses deceive them, they still hold that the sun moves round the earth. But the great majority now agree with Galileo and Copernicus,—they agree that the progressive process of thought in man is more trustworthy than the direct evidence of his senses.

There exists a progressive process of man's knowledge of himself and of the universe in which he exists and this evolution is marked by a gradual surrender of reliance on what we sense as giving us trustworthy evidence of reality. This progressive process is reflected in the forms of man's labour. For, while man as a living organism of muscular sense, sight, hearing and smell has advanced

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[1] All our knowledge begins with sense, proceeds thence to understanding and ends with reason. (Kant, p. 212).

[2] Even Einstein's theory is largely, if not mainly, concerned with the correction of the evidence of the senses, that is, the errors we make as observers.

in no way, his forms of labour demand greater and greater use of thought. The steam engine, aeroplane, telegraphy, telephony and wireless communications, for example, while demanding the use of man's static senses, demand always increasing use of the power of thought.

What has above been stated is necessary for the consideration of a recent most remarkable advance in science, an advance which marks a unique surrender of the evidence of our senses, a surrender necessitated by the advance in scientific knowledge.

In the past, before the time of Democritus, and up to the present time, we have, almost unquestionably, given real reality to matter. We have found the evidence of our senses apparently so fully reliable in support of our assumption of this reality that we have laughed at the possibility of thought being able to prove the evidence to be fallacious. Dr. Johnson, spurning a stone, scorned the idea of the unreality of matter as but a nightmare of lunatics ; we touch an object and we find resistance and inertia ; we toss a stone in the air and find that it falls back to the earth. Could anything, as an instance, prove more fully Newton's law of the inverse square ? And what existence has that law without the reality of matter ?

We have, up to the present time, assumed the reality of matter ; we have assumed that the very reality of the universe in which we exist depends for its foundation on the reality of matter.

And yet, now, science holds to the theory of the dematerialization of matter. It dares to fly directly in the face of the evidence of our senses and declares that matter is but the manifestation to us of a form of energy. And energy itself ? Science still holds to the conservation of energy. What does this mean ? It means that energy was and is and will be, and what does this "was and is and will be" mean ? It means that energy is unconditioned by the changes of time and space. Science has reduced matter to a form in our universe of "something" unconditioned in time and space. It has reduced the sensuous to a form of the non-sensuous. For energy is non-sensuous[1].

I may be merely bringing coals to Newcastle, but it is advisable to give a short, dogmatic statement of how science has arrived at

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[1] Secondly, the real in space—that is, matter—is conditioned. Its internal conditions are its parts, and the parts of parts its remote conditions ; so that in this case we find a regressive synthesis, the absolute totality of which is a demand of reason. But this cannot be obtained otherwise than by a complete division of parts, whereby the real in matter becomes either nothing or that which is not matter, that is to say, the simple. Consequently we find here also a series of conditions and a progress to the unconditioned. (Meiklejohn's Kant, p. 259).

the dematerialization of matter. I give, at the end of this paper, the names of certain recent works, amongst very many others, which may be referred to as authority for what is hereafter stated. To touch on the almost innumerable works which mark the evolution of the ideas of leading men of science on the subject is now impossible.

Till recently science held to the indivisibility of the atom. Matter was held to exist, the atom was its indivisable ultimate. But, more recently, science has broken up the atom. It is now held to exist in a mainly positive nucleus and negative electrons. It may be compared to our solar system in petto, the nucleus representing the sun and the negative electrons the planets, the relative distances of the negative electrons from the nucleus being approximately the same as that of our planets from our sun and the movements not unlike.

The atom is very very small. But imagine it magnified to the size of the dome of St. Paul's. Then the nucleus and negative electrons lumped together represent but one pin-head's point of the whole ' body ' of the atom.

What then, does the main part of the atom consist of? Here science is, as yet, undecided. We must, I think, give some meaning to this main-body. So I will term it etheric. It certainly exists as ' something ' which is not matter. So I simply term it ' etheric.' But bear in mind science is not in full agreement as to the existence of the ether.

Now the atom manifests resistance and what is termed inertia. How can this resistance be set up? It is, I think, popularly understood as resulting from the vastly great movements of the negative electrons round the nucleus. But this, I think, is an error. The resistance results from these movements in relation to the whole ' body ' of the atom,—the motions must be regarded as confined to the space occupied by the etheric form of the atom. For it is the etheric *form* of the atom that manifests resistance and inertia.

Consider, for instance, your own body. The atoms it is partly made up of amount to no more than, let us say, one thousandth part of a pin's head. The form of your body is etheric, with the atoms moving about in it. That is scientifically true. But when you strike your body, the *whole form* offers resistance. To your senses your whole body is a material thing which offers resistance. I think this resistance must result from motion of the atoms confined to the etheric form of your body.[1] Herein is found one of the

[1] Now, Scientifically, form is in itself etheric. The form of every object is etheric.

difficulties as to the existence of the ether. For how can we distinguish between the quantum of ether which defines the form of the body and the ether of space? The quantum theory, I think, is in its infancy.

But still we have not arrived at the full dematerialization of matter, for we still have the negative electrons and the nuclei.

Science has to consider gravitational, electric, magnetic fields and chemical processes. All that can now be done is to suggest the direction that scientific thought has taken in arriving at the dematerialization of matter. And, for this purpose, I shall use an old idea which relates back to the time of the Sixties of last century and, I think, is associated with the name of Clifford.

Newton's law of gravitation is accepted by all, including Einstein. By this law every atom is a centre of gravitational attraction, attraction extending, by the law of the inverse square, to infinity. We cannot separate the atom from its gravitational attraction, we cannot separate the gravitational attraction from the atom. What then do we reduce the atom to? To no more than a centre of force. This is the old idea I refer to. The real reality is to be found in the gravitational field, the atom, as a centre, has no more than relative reality.[1] Break up the atom, as we now can, into negative electrons and nuclei and the same is true for each one of them.

Now science, as before said, has to consider many forces in nature. But it reduces them all to one common denominator. It refers back all to *energy*.

But the principle of the conservation of energy is still held to, so that energy *itself* cannot be manifest in our universe of time and space, that is, in our universe of relativity. But energy *is* manifest in protean form: gravity, electricity, magnetism, for example, are forms of energy. So science *can* operate with gravitational, electric, or magnetic fields of force. These fields have, for us, centres which, roughly, I now term atoms. Matter (atoms) is thus reduced to a mere part of fields of force and all these fields being referred back to energy as their source, matter,—in our universe of relativity—becomes merely phenomenal of energy.

Time and space are the absolutely first formal principles of the *sensible* (my italics) world. (*Kant's Inaugural Dissertation of* 1770. By W. J. Eckoff; Columbia University, New York, May, 1894; pp. 63, 67.)

Energy itself is not subject to these absolutely first formal principles, but its protean forms, electricity, etc.—*are* so subject and it is thus that energy in its protean forms becomes manifest to us

[1] We cannot now trouble with the possibility of reducing this 'centre' to a mere Euclidian point.

in our sensible world. It is when energy is manifest to us in protean form that our sensible (material) world comes into existence: this world is phenomenal of energy. Science by its dematerialization of matter holds to this subjection of the sensible to what is thought about the sensible. It holds to the subjection of the sensible universe to the intelligible universe.

Rougier, after a chapter explaining how the dematerialization of matter is arrived at, goes so far, (p. 93) as to hold that "Newton's law expresses in reality the law of attraction of energy by energy." But I have the authority of a great physicist for doubting the correctness of this statement. If we hold to the conservation of energy we cannot condition energy itself in any way. But we *can* condition its protean forms. So I suggest Rougier should have stated that "Newton's law expresses in reality the law of attraction of forms of energy by forms of energy."

Still, however this may be, we find that science holds now to the dematerialization of matter.

Let me summarise the conclusion that, scientifically, we have now come to.

Man as a living organism of muscular sense, with the powers of sight, hearing, smell and feeling has advanced in no way from what he was in the time of the Neanderthal man. But, as a being of thought, he *has* advanced in scientific knowledge of himself and his universe. This advance though it has been marked by the use of his senses is marked also by the gradual correction even contradiction of the evidence they offer. This advance in thought is now crowned by the acceptance by science of the dematerialization of matter, whereby the authority of thought is recognised though it *contradicts* the evidence of the senses.

Kant's theory of the command of the intelligible universe over the objective (sensible) universe is accepted by science as sound.

This new truth may, as Goethe said, be kept long waiting till it has made a path for itself. But, even now, the new light it throws on materialism and the mechanistic theory and their relation to the metaphysical, has been fully appreciated by some of the highest authority.

Bertrand Russell, who is well known to us all as a leader amongst rationalists, will be acknowledged as a man of exceptionally high authority. He has a paper in the *Quarterly Review, Psyche*, (vol. v. pp. 115, 120) on "Materialism, Past and Present." As to matter itself he says: "The old solidity is gone, and with it the characteristics that, to the materialist, made matter seem more real than fleeting thoughts." And, reviewing the recent advance of scientific

thought, he sums up the result in the last paragraph of his paper. The paragraph reads thus:

"The conclusion of the above discussion would seem to be that, as a practical maxim of scientific method, materialism may be accepted if it means that the goal of every science is to be merged in physics. But it must be added that physics itself is not materialistic in the old sense, since it no longer assumes matter as permanent substance. And it must also be remembered that there is no good reason to suppose materialism metaphysically true: it is a point of view which has hitherto proved useful in research, and is likely to continue useful wherever new scientific laws are being discovered but which may well not cover the whole field and cannot be regarded as definitely true without a wholly unwarranted dogmatism."

Science by its dematerialization of matter, has gone far to bridge the gulf between itself and the metaphysical. It has determined its own field of thought as limited in the present and, while still holding that it has nothing to do with the metaphysical, it admits that the field of thought open to the metaphysical *may* lead to the discovery by man of truth beyond that which science itself can, as yet, reach in its evolutionary progress. The metaphysical is now recognised by science as a prairie open for its cultivation as scientific knowledge evolves.

IMAGINATION.

The dematerialization of matter by science amounts to a dematerialization of our objective (sensible) universe. It has thus a direct bearing on our consideration of imagination though, at first thought, the connection is not easy to find.

So long as reality is given to matter, so long the mechanistic theory has a sound foundation for its support. Starting with this reality, the brain (matter) may be regarded as productive of thought by its motion, and imagination may be regarded as irregular thought, —as baseless, fanciful, in that it is opposed *to the actual*. For the content of imagination is very largely non-sensuous, so that from the old materialistic point of view imagination exists in the non-actual. And yet the scientist *uses* imagination.

Arguments in support of the mechanical theory may be good, bad or indifferent, but the reality of matter gives them a good foundation to start on. When, however, science holds to the dematerialization of matter the foundation of the mechanistic theory is, I think, undermined. The theory may still remain useful in the materialist's *own* field of thought, but, as Bertrand Russell tells us, this field is limited and leaves open to the metaphysical the path towards full truth.

I doubt, as I have said, whether when matter is dematerialized the materialist can still hold that the brain, as a material organism, can originate thought. It is true that, in a limited sense, thought is correlated to motion of the brain. But Kant gives a wider meaning to thought. And, scientifically, the brain is no more than a particular form of energy. How then can it be capable of producing thought? Steam does not move any engine. It is the *man* who *uses* steam whereby the engine is moved and in the same way, thought accomplishes nothing. It is the man who, using thought, thinks and accomplishes something. So, even, if the brain be held to produce thought,[1] then, for thought to be effective in action (as it is) the materialist must admit the existence of man, as a self-conscious subject, for the *use* of thought. For all that is accomplished, is accomplished not by thought but by self-conscious beings using thought. I doubt if it can be logically argued that the brain, even if held to produce thought, can be held also to create man as a self-conscious subject. The dematerialization of matter reduces the brain from being considered as an objective thing-in-self, to a mere particular appearance, to us, of energy.

Now how far has science advanced on the path of metaphysics? I shall refer to Kant because all later forms of philosophy appear to me but details or particulars of his philosophy.

Science has come to agreement with Kant as to one most important fact. It agrees with his principle that the intelligible universe holds command over the sensible universe. All the previous argument has gone towards proof of this statement. And it is this advance in scientific thought which has led science to admit the reasonableness of metaphysical enquiry.

But what do we mean by thought, what do we mean by imagination? What do we mean by personality?

For any reply to such questions, science is, as yet, silent. If, as has been argued, science can no longer hold that the brain originates thought, can no longer hold that it creates personality, it leaves all such questions in the air. But it admits that the questions are reasonable and that man is justified in trying, metaphysically, to reply to them,—the very being of man demands enquiry and science now recognises the reasonableness of his demand.

Science, by its dematerialization of matter and (incidentally) by its acknowledgment that the intelligible universe holds sway over the objective (sensible) universe, has gone far to bridge the gulf between science and metaphysics. But, just as it has taken more

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[1] Kant suggests that the brain impedes thought: it is useful only as a link between the real proper self and sensuous phenomena.

than a generation for the ideas some of us held in the sixties of last centuries to find general acceptance, so it will take at least a generation for the present advance of science to be fully recognised.

But I must hold, dogmatically, that science by accepting not only the fact of the dematerialization of matter but (incidentally) the fact of the subjection of the objective (sensible) universe to the intelligible universe has brought into the field of *scientific* thought consideration of the truth of Kant's great ultimate conclusion. And what is that conclusion ?

That the real proper self of man is a transcendental subject or soul and that imagination deep buried in the soul is the origin of all human thought and all human conduct which results from thought.

AUTHORITIES REFERRED TO :

The A.B.C. of Atoms (Bertrand Russell.)
Philosophy and the New Physics (Louis Rougier.)
The New Physics (Arthur Haas.)
Kant's Critique of Pure Reason (Meiklejohn's Translation.)
(pp. 33, 40, 62, 96, 111, 143, 153, 222, 299, 308, 333, 338, 417, 451, 473.)

CHILD THOUGHT

By J. C. WRIGHT, F.R.C.S.

There seems something almost supernatural at times about child thought, and this "something" exhibits itself in ways strikingly different from those of a couple of generations ago. The growth of sport and games and of social intercourse with adults have much to answer for, and in some aspects very properly, though certainly the home counts for less than it did. In these days children enjoy liberties that the parents of former days would not have tolerated. Freedom has sometimes generated into license. Hence, it has come to pass that the influence of the home is not what it was, and the reaction has shown itself in many ways. The result is not entirely satisfactory. We cannot get away from the fact that each child has an individual life which should be so trained that it may grow naturally, and develop physically, mentally, and, we must add, spiritually in all things beyond our most cherished dreams.

The opening bud of promise soon shows itself. "A child lives in the light of the morning land." Mystery is unknown. It has a fairy world of its own, and it is a real world. Even Heaven itself is no cold abstraction. God is a Presence about his path. Two little ones were overheard talking of Heaven: "How will we get there?" asked one. "Will we open a door in the clouds?" "Why, I know," was the response. "We will tell God that we say our prayers every night."

"I was talking once with a friend in the presence of a little boy," said George Macdonald, "of whom neither of us was taking notice, when I happened to say of a certain writer, 'He not only does not believe there is a God, but takes for granted that no intelligent person does.' The boy was evidently shocked, and said: 'Was he ever alone by himself in the dark?' Then he added: 'If I were God, I wouldn't take care of that man any more.'"

Imagination and reality are never far apart in the mind of the child. It is said Ruskin told the following story: "My little ever-so-many times grand cousin, Lily, had a bit of stick with a round knob at the end of it for her doll one day nursed it through any number of illnesses with the most tender solicitude, and on

one deeply important occasion of its having a new night-gown made for it, bent down her mother's head to receive the confidential and timid whisper: 'Mamma, perhaps it had better have no sleeves, because, as Bibsey has no arms, she mightn't like it!'" Contrast this with the reality of a child. Professor Scott has given us an example in story of the child who prayed: "Please, God, make the clergyman say something that I can understand."

There used to be the impression that it was natural for a child to lie. Apart from imagination this idea is now rejected. Lying is not natural—it is the romance of childhood. The child plays with words, as with everything else: there is no dissimulation. A Sunday School Teacher had read the 73rd Psalm. "What do you think," she asked a little boy, "the words mean, 'I saw the prosperity of the wicked, for there are no bands in their death'?" And the reply came: "Why, wicked men mustn't have military funerals."

We must remember that to the imaginative child the world is peopled with gnomes and sprites, with elves and fairies. Heaven is a far distant country behind the sky, where the sun is always shining. Clouds are wings—possibly the wings of the angels. God's voice is thunder, and lightning His eyes to see things. They have strange thoughts of God. "What does God do all day?" "Who made God?" are ordinary questions of the child mind. He regards God in the concrete, and hence his conception of God may be formed out of any material which appears in some special manner. We have heard of the boy who wrote a letter to God to assure Him he was a good boy, and asking for strength in order that he might fight a boy bigger than himself—he certainly regarded the subject from a practical standpoint.

Let us not forget that a better conception of God will come to a child whose religious environment is made a reality. Little by little his life will be led along the path of order, and goodness will be appropriated imperceptibly. "God loves everyone, doesn't He?" asked one of the children, as narrated by Lady Glenconner. "We are all bits of God broken off," was the poetic description of our relationship to the Father. This precludes the old idea of inherited evil, or, as it is usually termed original sin. Of course there are certain hereditary tendencies, and it should be the aim of the teacher to lessen these evil tendencies as early as possible in life, when the work is comparatively easy. We want to realise the saying of the Chinese: "There is nothing under heaven greater than the teacher."

SYMBOLISM IN VERHAEREN

By E. EALES

A very interesting work, with part of which readers of *Psyche* are already familiar, has just been published by Charles Baudouin, professor at the Institut J. J. Rousseau at Geneva, entitled *Le Symbole chez Verhaeren.* The author breaks new ground in the art of literary criticism, bringing to bear upon the works of the great Flemish poet the searching rays of psycho-analysis. Like Jacques Rivière, in his critique on Proust, M. Baudouin believes that literary works should be analysed psychically, as well as subjectively and objectively, and there is no doubt much to be said for such a theory, especially when, as is the case with both Verhaeren and Marcel Proust, the author reviewed is introspective, impressionable, and imaginative.

Ribot first, and then Freud, developed—the first perhaps to excess, the second more guardedly—the law that as long as we seek to understand the imagination by means of the imagination, we are practically powerless. But as the Swiss professor points out with much truth, psycho-analysis finally perceived that imagination is wholly directed by the affective life, by the feelings, sentiments, emotions and instincts that accompany mental images, and it is this view of the matter that he takes when analysing the works of Verhaeren. He shows the affective life of the poet even in the subconscious self, and its repercussion on the composition of the poems.

Verhaeren, from his earliest boyhood, conscious of the mysterious life-pulse beating in the universe round him, stopping even in his boyish play to listen to the rhythm discovered to his imagination in the Scheldt, or in the trees, always extraordinarily sensitive to the clamour of the elements, sought at first to put into verse that confused anguish of things, of which he was dimly conscious all the time. His "Campagnes Hallucinées" was the result and the firstfruits of his extreme originality.

This poem, in which the poet seeks to use each villager as a symbol, includes that wonderful description of the "Passeur d'Eau," who, beaten by the tempest, struggling against wind and

tide, oars in hand, strives in vain to quit the shore to which he is bound by some malignant, all-powerful force. " Symbol of Useless Effort " ? Not so. For Verhaeren the " Passeur d'Eau " signifies tenacity, perseverance and that supreme virtue, which inspires men in the depths of their worst trials, to lift a defiant head, and with eyes that pierce the prevailing gloom, to behold the reward of their labours—the virtue of Hope.

And yet this very virtue seems to have abandoned Verhaeren in his thirty-fifth year, and suffering from acute stomach-trouble, he falls an easy prey to religious doubts, he—the fervent mystic of that sensuous, mystical, Flemish faith—and passes through a violent phase of both physical and moral disorder. Henceforth that tendency to ascetism in the poet, which is so strongly marked, becomes a dead-letter, and in " Les Débacles " shows itself only as an insensate rage, whose aim is to harm and hurt oneself. Because of this inverted ascetism, Verhaeren *wills* to suffer more intensely, to lacerate his already exasperated feelings, to prove himself less than he really is, to invent new sufferings, and even to contemplate suicide.

Arrived at this point, Verhaeren's conscious and subconscious world is in a state of anarchy, and in order to bring unity out of these chaotic conditions, a new sense of life, a new ideal, a super-force, is necessary. Groping in mental and moral darkness, a new rhythm breaks upon the poet's ears from the world outside ; he becomes conscious of the mighty flux of human and social action ; he grasps the sense of what he has hitherto abhorred, he accepts henceforth the utility of the *factory*, he is restored to a belief in human labour, and internal harmony is achieved.

The crisis past, Verhaeren, strange mixture of Realist and Dreamer, is once again the Seer, the Prophet and the Man of Action. Having followed, step by step, the influence of his affective life upon his imagination, we are led to see how that imagination once more has recovered its balance, and the genius of the poet, after long hours of travail in the Subconscious, brings forth into the light of the Conscious the glories of his later works, which he clothes in the verbal splendours befitting their subject. Master of his imagination, of his visions, in full possession of all his wonderful talents, of his marvellous understanding of men and Nature, he proclaims his unalterable belief in Life in that magnificent symbol of the green reed, and in the zenith of his career, sounds the trumpet-call of every hope, forlorn or otherwise.

" La vie est à monter, et non pas à descendre."

FOREIGN INTELLIGENCE

Child Psychology in France.

The *Journal de Psychologie* devoted in January—March, 1924, a special double number to a study of the child, in which both psychologists and educationists will find many good and interesting articles.

M. Lapie first lays emphasis upon the necessity for teachers to know Psychology. Is it better for school children to divide the week into two nearly equal portions (giving them a holiday on Thursday, as in France), or to give them, as in industry, a holiday only on Saturday afternoon? Is it better to give all lessons during the morning only, as in Germany, or to have them half in the morning and half in the afternoon, as in France? Why do some children spell so easily, while some others, no less intelligent, are so refractory to right spelling? At what age must the child begin to learn reading? Which methods are most efficient? Such problems, and all the others raised by education and school organisation, can be solved only by psychological experiments on changes in attentiveness, and on mental fatigue, memory, etc. Progress in educational science and in school organisation can be obtained only through a close collaboration between teachers and psychologists.

Prof. H. Delacroix, in "l'Activité linguistique de l'enfant," a chapter from his book *Le Langage et la Pensee*, discusses the problem of the acquisition by the child of its mother-tongue. What is the *rôle* of invention and what that of imitation? As regards spontaneous invention, the same hypotheses as those put forth to explain the origin of language have been advanced; the emotional hypothesis and the onomatopœic. Jespersen quotes many words invented by children without any likeness to the words of their mother-tongue. But, according to Stern, many of these childish creations vanish when carefully analysed: *e.g.*, a little girl of two said *Eischei* for *laufen* (to walk), but she had made out this so-called invented word from the *Eins, Zivei*, with which her steps had been counted. However, Horatio Hale, Jonasson and Esricht quote the case of young children who invented a language of their own unintelligible to their parents, but which they had taught to their young brothers and sisters, and Jespersen has observed two twins of 5 neglected by their mother and brought up by an old deaf woman who never spoke to them: they had made up a language of their own, a compound of deformed Danish, of other words having apparently no relation to Danish, and of onomatopœia. These instances show that children may constitute by themselves a

language, but in ordinary circumstances this faculty of invention may not develop, for the child soon receives from its surroundings a ready-made means of expression, which is the mother-tongue.

O. Block describes the careful observations he made upon his three young children concerning the development of the sentence in the child's language.

Mlle. A. Descoeudres, of the Institut Jean-Jacques Rousseau, of Geneva, explains how she discovered a method for measuring the language of the child. Some years ago, the question of the average number of words possessed by a child of a given age was much discussed: according to the psychologists, the estimate of the vocabulary of a child of two varied from 4 to 1,500 words. Though the richness of the vocabulary certainly varies much with the individual, for such a difference the lack of an adequate method was chiefly responsible. Mlle. Descoeudres succeeded, by means of tests, questions and long conversations that led the children to speak out all the words they knew, in determining the approximative spoken vocabulary of children from two to seven.

J. Piaget, also professor at the Institut J. J. Rousseau expounds in "Traits principaux de la Logique chez l'enfant," the chief theses of his book *Le Langage et la Penseé chez l'Enfant*, which is reviewed in this number of *Psyche*. We shall give here only his point of view, which is also that of Rousseau: the child is not a little grown-up man or woman, but a being *sui generis*, with needs of its own and a mind adapted to these needs. In spite of the influence of family and surroundings upon its mental development, the originality of the child's intellectual structure is obvious, and the author even finds the child's Logic and Psychology as different from that of the grown-up as is the "primitive mind" described by Lévy-Bruhl or the "symbolical consciousness" of Freud.

Professor K. Koffka, whose work is well known to readers of *Psyche*, and whose book *The Growth of the Mind* has just been translated into English, outlines his "theory of form" (*Gestalt-theorie*), which, in opposition to Behaviourism, regards the behaviour of the individual *as a whole* having a determinate *form*, and looks upon behaviour in its *receptive* (or subjective) as well as in its effective (or objective) aspect. He shows how it can be applied with much benefit to the study of the child. This point of view explains, *e.g.*, why children are so early attracted by everything that has "expression," why they recognise human faces much earlier than Euclidean figures.

M. P. Guillaume urges that the study of the child may assist us in the solution of problems of perception.

The physiologist A. Tournay contributes in "l'Assymétrie dans le developpement sensitivo-moteur de l'enfant" to the study of the problem of right-handedness.

Dr. O. Decroly, in "L'interêt chez l'enfant," remarks that psychologists are at variance as regards what most interests children at a given age. It would indeed be very useful for the composition of class-programmes if it were possible to determine for every age what most interests the child at that period, and consequently what it assimilates best, but, in fact, the interest

for a given kind of object is before everything dependant upon individual evolution, and it is not possible to give a precise rule for all children in general. Decroly praises the method which he has successfully tried : to take as bases of the teaching subject-matter which is related to the deepest and most lasting needs, which are, according to him, hunger and thirst, need to protect oneself against inclemency and other dangers ; to give children a non-bookish education, and to prepare them by sports and various material activities that will train their ingenuity for the part which they will have to play in life, and for which the ordinary programme of the school at present prepares them very poorly.

Dr. Wallon criticises the ordinary opinion which wonders at child questionings, and sees in these an obvious proof of intelligence. It is certain that most often, in normal children, the questions they ask denote an awakening of intelligence ; but the case of the congenital aphasic show that in some cases speech may remain quite unknown to a child without its understanding of everyday life being strikingly inferior to that of other children of the same age. Besides, it is wrong to believe that questioning is always due to an earnest wish for learning : it often becomes a kind of mania, and children may be seen not infrequently questioning endlessly without taking any interest in the answers, solely in order to practice their power upon their surrounding. The abuse of questioning can even become a pathological symptom, observable in degenerative psychoses, and these pathological forms of interrogation reveal to us its true nature : intellectual laziness and suggestiveness. This is why the questioning attitude is not to be favoured. It is better to develop the spirit of invention and discovery.

E. Cramaussel tries to guess "what children's eyes see," from their descriptions of images or of objects. These descriptions are very surprising for grown-ups : *e.g.*, a child of two-and-a-half seeing in an Art journal the photograph of a pearl necklace says : "Plums, to eat." The same child seeing the photograph of an iron clock upon a shining piece of furniture says : "It is a bed, it is the sea." After analysing many of these children's answers, one can understand that, in making those comparisons which astonish us so much, the child starts from some detail which has struck it, and pays no attention whatever to the rest of the image : *e.g.*, when, before a verandah, he says : "It is a door, the train is going to pass," he only remarks that the curve of the bow-window has the same inflection as a tunnel arch, seen from without. The child makes such comparisons as it can from a short experience and a poor stock of images.

G. H. Luquet studies, from the documents collected by S. Partridge, Earl Barnes, Levinstein and himself, children's drawings illustrating a tale or some real event : these drawings he calls "graphic narration." He discerns four types : the Symbolic, which represents only one episode of the performance, looked upon as the most important and as being symbolical of the whole ; the "Epinal type," where each episode is represented by one drawing (as in the illustrated tales for children formerly printed at Epinal) ; the Repetitive type, where the scenery does not change, but where

the actors are repeated as often as they do anything new; the Juxtaposition type, where elements are juxtaposed on the same image which, in the tale, happen successively. He then inquires at what age the child uses each type of drawing. He finds that the repetitive type is scarce, perhaps on account of the insufficiency of documents, but more probably because this type is used above all during infancy, whereas S. Partridge's statistics begin only at six years, and those of Levinstein at seven years. The symbolic type is hardly used before eleven, *i.e.*, when the purely childish period is at an end. From six to eleven, the types used nearly exclusively are the juxtaposition type and the "Epinal," but the former regularly decreases until eleven, while the latter regularly increases until twelve, then lessens. The conclusion of these observations is that, the older the child gets, the more it gives up intellectual realism and tends to a visual realism.

M. Foucault relates his inquiries about visual and auditive acuteness in school boys and school girls. He found a close relation between sensory deficiency and mental backwardness. He concludes that all school children should undergo a sensory examination, after which the deficient children should be placed near the teacher; for, when far away, most of the teaching escapes them, and this is the chief cause of their intellectual inferiority. The author has established that the number of these deficient children is not less than 30 per cent. for the ears, and 20 per cent. for the eyes.

P. Bovet explains by intra-family conflicts, hatred-complexes for father or mother, the phenomenon of vagabond and wandering children.

E. Claparède praises the use of the cinema as a method for studying the child's psychology, for it alone permits constant repetition of the scene that one wants to study. Without the cinema, one must ask the child to repeat its reaction, but the second reaction is never identical with the first.

J. Lefaconnoux studies schemes of school reform just before the French Revolution. They were chiefly: secularization of the teaching, and predominance of mathematics, sciences and living languages over the classical teaching.

In this the same number of the *Journ. de Psy.* will be found detailed accounts of the best works on Education or Child Psychology recently published in Germany (Koffka, W. Stern, Clara and W. Stern, Helga Eng, Baumgarten, Bühler, Valentine), in England (W. Brown and G. H. Thomson, Lewis M. Terman, Cyril Burt, Angelo Patri), in Belgium (Decroly and Vermeylen, Dr. Vermeylen, Jouckheere), in the U.S.A. (S. and L. C. Pressey, S. D. Porteus and H. F. Hill), in Switzerland (Piaget, Mlle. Descoeudres, etc), and in France (Durkheim, Paul Lapie, Delvolvé, Foucault, etc.).

Lectures in Paris.

The *Institut de Psychologie*, of Paris, announces the following lectures for the year 1925:—

General Psychology: Prof. H. Delacroix. The higher feelings. (At the Sorbonne).

Psychopathology: Prof. G. Dumas. The expression of the emotions. (And practical demonstrations at Ste. Anne Asylum).

Comparative Psychology: Prof. P. Janet. The affective feelings, love and hatred. (At the College de France).

Psychophysiology: Prof. H. Piéron. Theories on vision. (At the College de France. Practical work and demonstrations at the Laboratory).

Animal Psychology: Prof. E. Rabaud. Tropisms.—The leading lines of the living manifestations. (At the Sorbonne. Practical demonstrations at the Biological Laboratory).

Educational Section: Prof. Fauconnet. Educational Science and Sociology. (At the Sorbonne). Dr. Wallon. Psychology applied to education. (At the Sorbonne; practical work at the Laboratory of Educational Psychology). M. Simon. Experimental Pedagogy. The acquisition of the mother-tongue. (At the Sorbonne; practical work at the Laboratory, A. Binet).

Applied Psychology: Prof. Piéron. Methods of Measurement in Psychology. (At the Sorbonne). M. Lahy. Practical work. (At the Laboratory of Experimental Psychology): Analysis of Human Work, Scientific organisation of Work, Vocational Selection.

CAMILLE NONY.

PSYCHOLOGY IN THE U.S.A.

Meetings.—Undoubtedly the best attended meeting of the American Psychological Association, as also of the American Association for the advancement of Science, took place in Washington during the last week of December, in Corcorar Hall, George Washington University. Numerous papers were presented, and among the chief features were the "round table" conferences devoted to specialised interests, such as experimental psychology, *Gestalt Psychologie*, etc. There were also joint sessions with the anthropological and the political science sections of the A.A.A.S. Clinical psychology, character study, mental measurement, and industrial psychology were represented in separate programs. In many of the discussions, partly because of the presence of Prof. Koffka, references were made to the *Gestalt* movement. One of the first papers dealt with the relation between this type of psychology and objective psychology, and called forth some criticism on the ground that the term *response* which was so emphasized in the paper can be described in at least two ways (1) behavioristic or objective, and (2) from the standpoint of the respondent who must be reckoned with.

After this Prof. Woodworth, of Columbia University, announced that the study for the prevention of automobile accidents was a subject which psychologists ought to take up, and that the National Research Council was interested in research along this line in order to work hand in hand with the department whose duty it is to see that such accidents are reduced. The round table to discuss this was arranged for lunch.

President Angell, of Yale, outlined different sorts of research institutions, and placed the new Yale Institute of Psycho-Biology which was founded by the Rockefeller Memorial Foundation in this scheme. Among the major fields of research are (a) behavioristic studies of animal psychology with a special reference for primates, (b) fundamentals of normal human behavior, (c) the technique and validity of tests, and especially the statistical treatment of the subject, (d) aberrant mental behavior, (e) racial and primitive human behavior, with special emphasis on the social aspects.

The work of the institute is so arranged that each of the men is supplementing the work of his colleagues. Yerkes and Dodge head the psychological department and Whistler the anthropological. A number of research assistants, some engaged in graduate work, others who have already secured the doctors degree, doing the more advanced type of research, would facilitate the work of the men who direct the researches.

Dunlap in his paper, after exonerating McDougall of some of the common fallacies that have been attributed to him prior to McDougall's rebuttal in self defence, denied that he was in agreement with him in as much as his desire doctrine was not to be understood as a faculty or mental disposition, but as relating to organic feelings which, as such, were introspective data, while McDougall seemed to take instinct as a potential energy, neither as observable behavior nor as an introspective fact. In this Dunlap thought he showed a trace of the old faculty psychology. The list of 13-plus instincts formulated by McDougall was supposedly final, and the result of a great deal of deliberation. His own list of 9 desires was rather tentative, and subject to revision in the light of future research.

In the experimental session Koffka's paper took up the advantages of *Gestalt-Psychologie* in dealing with visual phenomena. He claimed that the difference between Helmholtz and Hering was that Helmholtz stressed conditions, while Hering stressed facts of psychological observation. Hering had a broader view of the stimulus than Helmholtz, although the latter did examine conditions of the stimulus far more elaborately and, from a certain angle, more scientifically but both had a narrow view of sensation. In point of fact even the effect of colour contrast points to the dominant feature of perception.

Prof. Yerkes gave an account of some experiments with the Chimpanzee, in which the tests showed that ideational processes were going on in the mind of this anthropoid ape, and, furthermore, anticipated the possibility of administering intelligence tests of a non-verbal kind to a chimpanzee.

Dr. Morton Prince, though his paper was to be on behaviorism and its fallacies, somewhat changed its content so as to link up the developments in the modern physical theories, especially in connection with the atom, with the status of psychological doctrine. Instead of the customary address of the retiring president of the Association after the dinner, Dr. Burnham, of Clark University, and Dr. Starbuck, of the University of Iowa, paid eloquent tribute to the memory of Stanley G. Hall before the largest gathering of

psychologists ever seen probably anywhere. Dr. Burnham, a lifelong associate of the deceased President of the American Association, gave a vivid picture of the famous psychologist and educator, and Dr. Starbuck incorporated in his address a composite estimate of Hall's genius and influence on the basis of a questionnaire sent out to all the members of the American Psychological Association. While the majority had rated him among the foremost psychologists, there was at least one member of the Association who regarded Hall's work as negative throughout. Hall's merit was attested by non-Clark graduates to the same extent as by his own students.

At the joint meeting of the anthropologists and the psychologists papers were read by Profs. Woodworth and Boas and Drs. Hadlica and Brigham. The topic for discussion was Immigration and Intelligence, and the attitude was more sympathetic toward the immigrant than might have been expected. Prof. Boas attacked the Nordic superiority theory, and, indeed, the view that there is such an entity as a Nordic Race. Dr. Brigham exhibited a number of non-verbal tests, all of them pictorial representations to be manipulated on the analogy basis. Presumably these tests were to do away with the language difficulties precluding comparison of results among different racial or linguistic groups, or between literate and illiterate people.

In general the trend of psychology at present, as it especially impressed itself upon me at this meeting, is to connect this science with other sciences, and to extend the scope of procedure so as to include all the members in a series. In other words, the element of continuity is more and more emphasised. Of course it is quite known that these linkings-up have been taking place for some years, but never has there been such a tendency for a convergence from different fields, and at the same time an extension, in a linear way, say, from infancy to senility, from idiocy to genius or a high order of superiority, and from animal to cultured types of ideation. There have always been theories and speculations along this line, but at present, thanks to experimentation and testing, the field is cut right through.

Apparatus.—The most interesting pieces of apparatus were a correlating machine which cost about $2,500 to plan and to construct, a psychogalvanometer, and an automatic intelligence tester, exhibited respectively by Professor Hull, Dr. Wechsler, and Dr. Pressey. The manufacture of large and elaborate pieces of apparatus is becoming more common, and C. H. Stoelting Co., of Chicago, has now for some years given up its other lines of instruments and apparatus to devote itself entirely to the production of psychological material, tests included. Its latest accretion is a Vocational Guidance Service. The World Book Co., of Yonkers, N.Y., is specializing in educational tests.

Meetings at Clark University.—The scientific meetings at Clark University, in commemoration of G. Stanley Hall and Edmund C. Sanford, who worked together for many years as the executive heads of Clark University, and who died within six months of each other, took place on February 1, 2, and 3. The addresses were mainly in connection with genetic psychology. Dr. W. S. Hunter,

of the University of Kansas, has been appointed Stanley Hall Professor in Genetic Psychology at Clark University.

Political Psychology at Syracuse University.—A new school of citizenship has been equipped at Syracuse University, at which Professor Floyd H. Allport, formerly of the University of North Carolina, has been appointed Professor of Social and Political Psychology.

The "Margery" Case.—For many months the writer, though one of the earliest "sitters" in the now famous Margery case, has refrained from mentioning the facts in connection with this alleged medium, in spite of the circumstance that the controversy had stirred up two continents, and gave rise to charges and counter c arges among the sceptics and faithful believers in the genuineness of the phenomena as of supernormal origin, implicating in the dispute Sir Conan Doyle and Houdini, the latter of whom gave public demonstrations before huge gatherings to discredit the psychic prowess of "Margery," who is the young and charming wife of a leading Boston surgeon.

It would take hundreds of pages to give anything like an adequate account of what had taken place in the numerous *séances*, even before the Scientific American Committee undertook to investigate the case for the purpose of determining whether the award of $2,500 offered, for the production of supernormal phenomena, by the proprietor of the Scientific American, would be made in favour of the lady who, however, in that event signified her intention to donate the amount toward further investigation along those lines.

After many sittings, the members of the committee could not come to a unanimous decision, though, with the exception of one member, they were all disinclined to believe that the phenomena produced but *not* investigated in accordance with the strict instructions of the alleged spirit control were supernormal. Houdini at a dramatic sitting full of emotional tensions because of mutual recriminations instigated in the first instance by what purported to be a disembodied spirit, declared the whole exhibition to be a huge and deliberate fraud. The other members of the committee were willing to suspend their judgment until all opportunities were offered to the medium to produce the phenomena under conditions which wholly excluded the possibility of human manipulation. Some of the phenomena were really baffling, but since it was not given to the investigators to examine the antecedents, except visually and in dim light and at a flash, the onus of explaining the happenings could not be put on them. Mr. Dingwall, of the British Society for Psychical Research, took part in the later sittings and gave a report of his experiences before a large gathering without, however, definitely committing himself, yet seeming to some of the audience to imply that the phenomena were genuine.

Finally, an adverse verdict rendered to the Scientific American by Professor McDougall and Dr. F. K. Prince, chief investigator for the American Psychical Research Society (not to be confused with Morton Prince) made it clear that the prize was not to be awarded. Professor McDougall whose scepticism had taken definite shape in a letter addressed to "Margery's" husband as

early as November, 1923, added that so far as he was concerned the case was not proven, although he was doing his best to keep his " mind open to such evidence." In an extended statement issued in the *Boston Transcript*, Professor McDougall gave a number of reasons for believing that all the phenomena obtained at the " Margery " sittings were caused by normal means, stressing especially the fact that the alleged control was inconsistent and unaccommodating as soon as the conditions were more rigorously enforced. The ectoplasmic manifestations Professor McDougall took to be nothing other than " the lung of some animal surgically manipulated to resemble roughly the shape of a human hand."

Mr. Bird and Dr. Carrington who have taken part in many of the sittings, and who were accused by Mr. Houdini as working in collusion with " Margery," are apparently convinced that the phenomena were of supernormal origin, and are lecturing and writing favourably on their latest psychic adventure.

The press is decidedly confident of the authoritativeness of the careful statements issued by the two leading members of the Scientific American Committee ; and if I may add a single note of my own, it is to the effect that no investigators could have been more patient and indulgent under such trying circumstances as were those who took part in the more restricted sittings with " Margery."

An effort is now made to induce " Margery " to come to England for an investigation before the British Society for Psychical Research. Meanwhile it may be said that with the exception of Madame Palladino and Mrs. Piper, no medium has been able to create such a wide public interest as " Margery."

Laboratories.—The interest in laboratory psychology is growing, although, as yet, there are probably not more than fifty psychological laboratories in the country, as compared with the hundreds of physical and chemical laboratories. The recent expansion of the Western Reserve Psychology Department at Cleveland has been in the direction of establishing a laboratory.

The problems conducted in the laboratories, clinics, welfare stations, research bureaus, industrial plants, etc., would take up a volume even to enumerate.

The appended titles of investigations conducted at the Pennsylvania University Psychological Laboratory are typical of the activity going on in American laboratories.

1. The Relation between Accuracy of Judgment and Degree of Subjective Assurance.
2. The effect of Intensity upon the thresholds for Attention, Cognition and Apprehension.
3. The Relation of sense organs and warm and cold spots on the skin.
4. The effect of training on the Auditory Memory Span for Digits.
5. The Variability of Judgments for the upper threshold for tone and its causes.
6. Tabulating in permanent form statistics of 1,668 cases from an Investigation of Tests and Norms at the Vocational Guidance Level.

7. Tabulating in permanent form statistics of 500 cases from an investigation of Tests and Norms at the six-year level of Competency.

8. Investigation of Vocabulary and Ability to Match and Name Colours among group of Nursery School Children.

9. Re-organisation of Elementary Normal School Course in Psychology.

10. Reaction Time Experiments with Different Types of Psychopathic Cases.

11. Investigation of tests and norms of children of Pre-school age.

12. Application of Syllabus of six-year-old tests to Two Groups of Kindergarten Children—one group of foreign-born parentage—the other native born.

13. Application of Syllabus of six-year-old tests to groups of children in the Kindergarten, Connecting Class and First Grade of two private schools.

14. Compilation of statistics concerning tests of likenesses and differences in the Binet-Simon Test from 1,668 cases at the Vocational Guidance Level.

15. Vocational Guidance in the Junior High School: A study of the use of tests in the guidance of junior high school pupils.

16. Non-Test Factors in the Selection of Taxi-Cab Drivers: A study of non-test factors in relation to labour turnover, number and types of accidents, wages, etc.

17. Criteria for Admission to the College: A study of academic success and extra curricular activities in the secondary school in relation to academic success and extra curricular activities in the college.

18. The Measurement of Accounting Ability: A study in tests for the guidance of students in the Wharton School.

19. A Job Analysis of the Plumbing Trade for Use in Vocational Guidance.

20. A test of Ethical Discrimination: The Standardisation and Statistical Analysis of a new test.

21. A comparison of Forward and Reversed Memory Span: A study of the relation between the two and the relation of each to academic success, "general intelligence," etc.

22. A Girls' Mechanical Assembly Test. Standardisation and Analysis.

23. A Study of a Test of Mechanical Ability in Relation to Academic Success in a Trade School. (Boys').

24. Scores on Tests of "General Intelligence" in Relation to Academic Success. (Elementary School, High School, Normal School, College). Four separate studies.

25. The Pleasantness of Native as Compared with Foreign Perfumes.

PUBLICATIONS.

Books.—The dearth in books on theoretical psychology brings to mind again the fact that our psychology is in a text-book stage, and that we must turn to Germany and France for creative work. Publishers are not disposed to bring out books that will not have a large sale; and evidently readers of the English language are not interested in the abstract to the same extent as, that is to say proportionally with, readers of German and French. The best book of the year is probably *The Normal Mind*, by William H. Burnham, for many years professor at Clark University. It is a comprehensive and compact text-book of mental hygiene treated from the genetic standpoint. Other publications are *Laboratory Studies in Educational Psychology*, by E. M. Turner (Appleton); *Psychology of the Pre-School Child*, by B. T. Baldwin (Appleton); *Abnormal Psychology and Education*, by Frank Watts (Appleton); and *Psychology*, by E. D. Martin (People's Institute). Among the forthcoming books are *The Indestructible Union*, by Wm. McDougall—a sequel to his discussion of American democracy and eugenics, and *The Dream Problem*, by L. H. Horton.

Journals.—The pedagogical Seminary has enlarged its scope and increased its number of pages so as to make room for articles of a genetic nature. It is now called *The Pedagogical Seminary and Journal of Genetic Psychology*, and is being edited by Dr. Murchison, of Clark University, together with a corps of other psychologists.

A new journal is being contemplated to devote itself to problems of social and political psychology.

Though not primarily treating of psychology, the appearance in an English translation of the second volume of Helmholtz's monumental *Physiological Optics* must be mentioned here. This volume contains a valuable appendix by Christine Ladd Franklin, who, after critically examining the theories of Hering and Helmholtz, proceeds to expound her own well-known theory of vision, which is rapidly gaining ground. The third volume of Helmholtz's *Magnum Opus* is expected to come out in the Spring.

The bulletin of the Cartesian Research Society *Bio-Psychology*, which hitherto came out annually, has been converted into a quarterly. Dr. Lydiard W. Horton, Director of the Cartesian Research Bureau, is editor of this publication.

A. A. ROBACK.

CURRENT LITERATURE

J. PIAGET, *Le Langage et la Pensée chez l'Enfant*, (315 pp. Delachaux & Niestlé, Neuchâtel and Paris. 1923. 6/-).

This is a remarkable book and will be very useful to all who want facts about child psychology. M. Piaget founds this psychology upon a deep analysis of the child's verbal and logical functions, and this is quite new. He combats the ordinary opinion that children differ only in degree from the grown-up. On the contrary, according to the author, the child differs *in nature*. Its mind must change *its nature* to become a human mind ; the difference is neither in the interests nor in the means of expression : it lies in the structure. The child's thought is, relatively to the thought of the normal and "civilized" man, to be treated with the "Autism" described by Freud and Bleuler, or the "primitive mind" studied by Lévy-Bruhl, or the "morbid consciousness" of Blondel. The child occupies a place intermediate between the '*Autism*' in *dementia precox* and the logical thought of the normal man : like the 'Autist,' it is unconscious of the necessities of Logic, its thought is rich in images, incapable of fixed attention, and turned rather towards dreams than towards reality ; but what distinguishes the child's thought from that of the *demens precox* is that it tends to intellectual and social adaptation, and not only to physical satisfaction.

Piaget's observations were made on two children of five, whose every word was written down for one month. These observations were completed by noting the conversations of twenty children aged from four to seven. The chief characteristic of childish thought is, he holds, that it is "egocentric" : the language of the child is not, as that of grown-ups, before all a social link, a means of communicating one's thoughts ; it serves primarily to accompany, to strengthen, and to oust action. It is well known that children talk to themselves much more than they talk to other children : indeed, the chief form of childish language is the monologue, and even when the child speaks before interlocutors, it is again a kind of monologue, which the author calls "collective monologue" ; for the child, after having questioned, itself gives the answers without further delay.

The author proceeds to consider childish understanding. He asks : Do children understand each other ? Yes, when the language is accompanied by gestures. But when only verbal language is

in question, the same phenomenon observed among the primitive, disproportion between technique and language, appears in the child: verbal thought is late compared with thought-action. In order to study the mechanism of verbal thought in children (from nine to eleven years), the author used the tests formerly used by the psychologists of Wurzburg: the child is given a certain number of proverbs, then of sentences, and each of these sentences expresses the same idea—though in other words—as one of the proverbs. The child must find to which proverb each sentence corresponds. There are many mistakes; for the children, instead of making clear the meaning of each sentence and of each proverb separately, at first build, on the superficial likeness of the sound of the words, a scheme where the two propositions blend. M. Piaget calls this mechanism "syncretism," *i.e.*, subjective, 'egocentric' synthesis, in opposition to objective synthesis, founded upon analysis.

The third part of the book is devoted to the study of causality. The analysis of the child's questionings shows the existence of a period of 'pre-causality,' which lasts until the eighth year. From three to seven, "why" is a question that happens *à propos* of anything and means everything. Then the "whys" happen less frequently, the child gives up seeking the reason of every fact of its everyday life, and "how" begins to appear.

This part of the book, which is the richest, the most profound and the most instructive, is based on the examination of 1,125 spontaneous questions asked by children of six. The interest of the book as a whole makes us look forward to the same author's *Le Jugement et le Raisonnement chez l'Enfant*," which is to appear shortly.

C. N.

The Psychology of a Musical Prodigy, by G. Révész. (Kegan Paul, 10/6).

This welcome translation of Professor Révész' study of Erwin Nyiregyházi will enable English readers to familiarize themselves with the musical feats of this remarkable prodigy, who early attracted the attention of Nikisch and Busoni, was trained by Székely, Siklos, Weiner, von Dohnányi, Fiedler and Ochs, played before the King in London, and is now in America. In particular attention is devoted to the vexed subject of absolute pitch which Erwin possesses throughout the register, as distinguished from many musicians who are reliable only within a limited range of octaves.

As a rule interpretative talent does not appear before the child's eighth year, and the gift for composition considerably later. In Erwin's case, however, creative ability showed itself first, and twelve examples of his work are collected at the end of the volume proving him to be a composer of a very high order before his thirteenth year.

Professor Révész also attempted to determine Erwin's "intelligence age" by the various systems of mental tests now in vogue, and his results are recorded at length in section five. Though they do not by any means set Erwin down as a fool or a cretin (as is so frequently the case when our most gifted artists are tested by educational standards) their inadequacy for any but the most hurried commercial classification is once more demonstrated. As Professor Révész puts it (p. 41): "We get a most indistinct impression of Erwin, one which is in no way characteristic of him, if we base our conclusions merely on these tests of intelligence, for precisely that quality which is most remarkable in his intellect, its brilliance, is not expressed by this method." It is to be hoped that the author will not be long in giving us his promised volume on Musical Genius in general, where many questions here only lightly touched upon will presumably be dealt with at length.

P.P.M.

Physique and Character, by E. KRETSCHMER. Translated by J. W. H. SPROTT. (Kegan Paul, 16/-).

The author of this book allots individuals to one or other of two camps, in accordance with physical and mental characteristics. His efforts differ from many others of similar tendency in that he really does succeed in correlating the physical types with the described definite types of mental or psychical make-up, and in tracing this correlation throughout the "cross-reference" classification into gifted, average or normal, and pathological individualities. The broad distinction is between the "cyclic" and the "schizoid." "Cyclic" humanity, when below the level of normality, gives us our manic-depressive psychopath: "Schizoid" humanity degenerates into dementia praecox and other schizophrenic conditions. The gifted "cyclic" may be, and often is, a successful organiser, man of affairs, scientific systematizer, or what not, but the highest type of "schizoid" is exemplified by the retiring genius, the religious fanatic, and the leader of the forlorn hope. Physically, the "cyclic" man is what our author calls a "pyknic"—a broad-headed, heavy-jowled and plumpish person, while the long-headed schizophrene like Cassius, more often hath a lean and hungry look. There are, of course, mixed types, and sub-types, but the classification is well done and likely to be of practical value. For, as may be seen, although no mention is made of Jung, the cyclothyme and schizoid correspond very closely with the extravert and introvert, though having advantage over the latter pair in possessing definite physical characteristics that may be usefully discussed in the light of what has been lately written concerning endocrine and "racial" physical and mental types that "cut across" the ordinary categories of the systematic ethnologists. The book, which has been admirably translated by the Demonstrator in Psychology at Cambridge, should be of value and interest to the psychologist and to the medical man alike, and of particular importance to those doctors who really are anthropologists and psychologists.

F.C.

Man and His Affairs, From an Engineering Point of View, by WALTER N. POLAKOV. (Williams & Wilkins, 12/6, post free).

It is important that lawyers and efficiency experts generally should turn their attention to the misdeeds of logicians and philosophers. Hitherto, unfortunately, they have almost invariably succumbed to one another of the more intricate forms of Word-magic, and so have proved themselves blind guides. Mr. Polakov, however, has taken the unusual precaution of studying the pitfalls of language, and it is to be hoped that his example will in future be widely followed. The object of his book is "to stimulate the desire to do some rigorous thinking," and it may be read very profitably in conjunction with Dr. Hankin's forthcoming ***Common Sense and how to Acquire It.***

K. D.

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